FS-A75

PICMG1.3 Full-size CPU Card

User's Manual

Edition 1.1
2011/10/12

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Packing List:

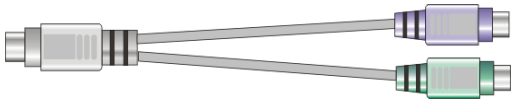
Please check the package content before you starting using the board.

Hardware:

FS-A75 PICMG1.3 Full-size CPU Card motherboard x 1

Cable Kit:

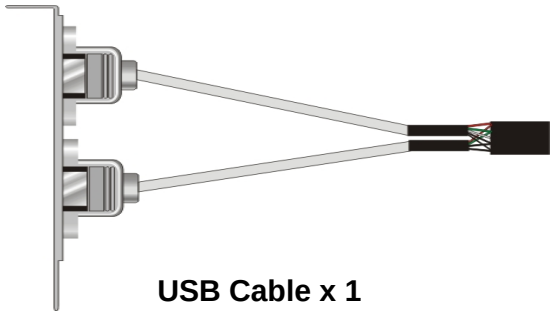
SATA Cable x 2
(OALSATA-L)



PS/2 Keyboard & Mouse Cable x 1
(OALPS2/MK)

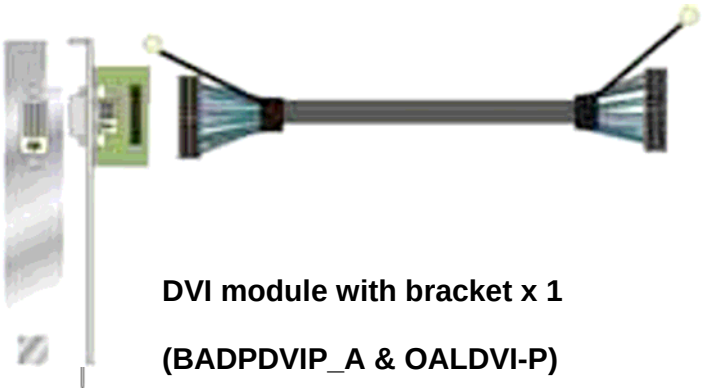
4-pin to 3-pin ATX cable x 1
(OAL-ATX-C)

Audio Port Cable x 1
(OAPJ-HD)



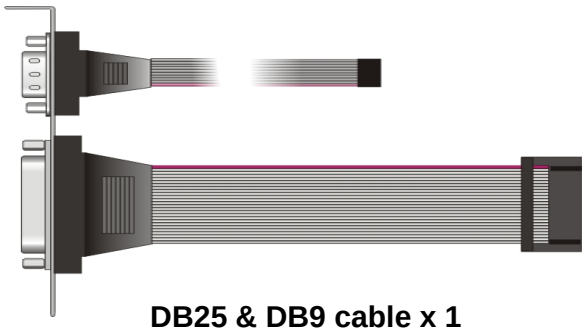
USB Cable x 1

(OALUSBA-1)

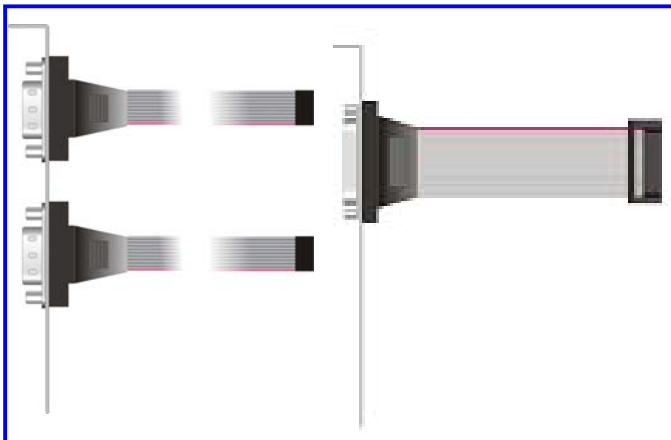


DVI module with bracket x 1

(BADPDVIP_A & OALDVI-P)



DB25 & DB9 cable x 1
(FS-A75TXG/ FS-A75FTXG Only)
(OAL1S1P)



DB25 cable x 2 & DB9 cable x 1
(FS-A75TXG2/ FS-A75FTXG2 Only)
(OAL2S1P)

Printed Matters:

Driver CD (Including User's Manual) x 1

CPU Cooler x 1
(OHS-P-M-G)

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Chapter 1 <Introduction>

1.1 <Product Overview>

FS-A75 the 2nd Generation Intel of the PICMG1.3 Full-size CPU Card motherboard, supports 2nd Generation Intel® Core™ i7, Core™ i5, Core™ i3 and Celeron® Mobile Processor and features Intel QM67 chipset, integrated HD Graphics, DDR3 memory, REALTEK High Definition Audio, Serial ATA and Intel Gigabit LAN.

Intel Sandy Bridge Processor

The 2nd Generation Intel® Core™ processor family mobile is the next generation of 64-bit, multi-core mobile processor built on 32- nanometer process technology. Based on a new micro-architecture.

New features for Intel QM67 chipset

The board integrates Intel QM67 chipset, supports integrated HD Graphics, built-in high speed mass storage interface of serial ATA, High Definition Audio with 2 channels surrounding sound.

All in One multimedia solution

Based on Intel QM67 chipset, the board provides high performance onboard graphics, 24-bit dual channel LVDS interface, DVI and 2 channels High Definition Audio, to meet the very requirement of the multimedia application.

1.2 <Product Specification>

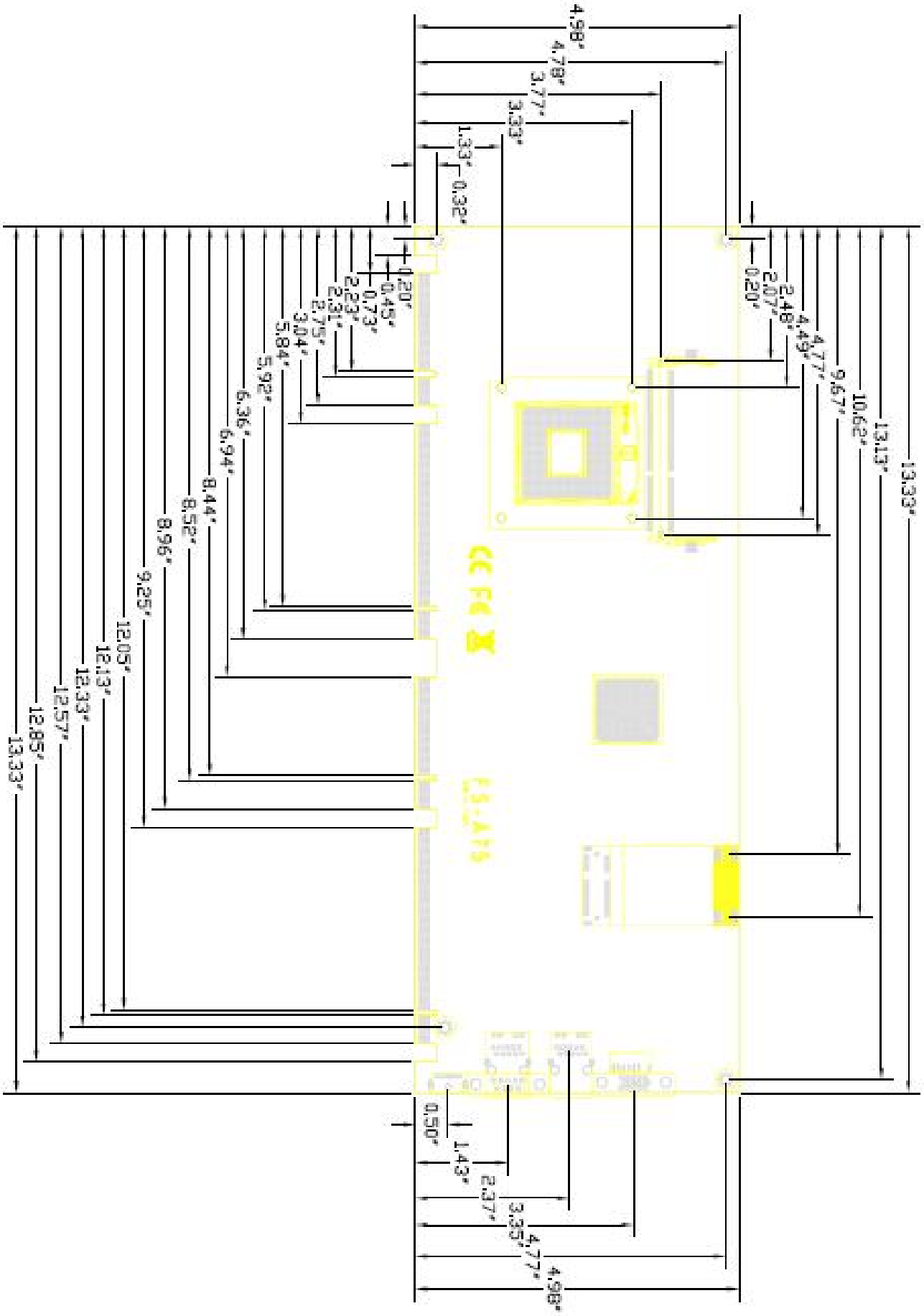
General Specification	
Form Factor	PICMG 1.3 Full-size CPU Card
CPU	2nd Generation Intel® Core™ i7, Core™ i5, Core™ i3 and Celeron® Mobile Processor Package type: rPGA988B
Memory	2 x DDRIII SO-DIMM 1066/1333/1600 MHz up to 16GB
Chipset	Intel QM67
Real Time Clock	Chipset integrated RTC with onboard lithium battery
Watchdog Timer	Generates a system reset with internal timer for 1min/s ~255min/s
Power Management	Supports ACPI 3.0 compliant,
Serial ATA Interface	4 x serial ATAII interface with 300MB/s transfer rate 2 x serial ATAIII interface with 600MB/s transfer rate
VGA Interface	Onboard DSUB15 connector for VGA interface
LVDS Interface	Onboard 24-bit dual channel LVDS connector with +3.3V/+5V/+12V supply
DVI Interface	Chrontel CH7318 Transmitter with 26-pin DVI connector
Audio Interface	Realtek ALC888 HD Audio
LAN Interface	2 x Intel 82574L Gigabit LAN
GPIO interface	Onboard programmable 8-bit Digital I/O interface
Extended Interface	PICMG 1.3 Interface Support 1 PCI-Express x16 and 1 PCI-Express x4 or 4 PCI-Express x1 4 PCI bus master, and 4 USB2.0 Interface and 1 x PCIE mini card socket
Internal I/O Port	5x RS232, 1 x RS232/422/485, 1 x SMBUS, 1 x GPIO, 8 x USB 2.0, 1 x IrDA, 1 x LVDS,1 x LPT, 6 x Serial ATA, 1 x LCD inverter, 1 x Front panel Audio and 1 x CDIN
External I/O Port	DB15 VGA port, RJ45 LAN port, PS/2 Keyboard/Mouse Port
Power Requirement	+5V, +12 DC input & $5V_{SB}$ Requirement
Dimension	338 mm x 126 mm (L x W)
Temperature	Operating within 0~60 centigrade Storage within –20~85 centigrade

Ordering Code	
FS-A75TXG	Intel PGA988B+ QM67 Onboard VGA, LVDS, DVI, USB2.0, COM, HD Audio, SATAII ,SATAIII, SMBUS, LPC, IrDA, GPIO and PCI Express mini card, 1 x Giga LAN Support Four X1 & One X16 PCI Express interface
FS-A75FTXG	Intel PGA988B+ QM67 Onboard VGA, LVDS, DVI, USB2.0, COM, HD Audio, SATAII ,SATAIII, SMBUS, LPC, IrDA, GPIO and PCI Express mini card, 1 x Giga LAN Support One X4 & One X16 PCI Express interface
FS-A75TXG2	Intel PGA988B+ QM67 Onboard VGA, LVDS, DVI, USB2.0, COM, HD Audio, SATAII ,SATAIII, SMBUS, LPC, IrDA, GPIO and PCI Express mini card, 2 x Giga LAN Support Four X1 & One X16 PCI Express interface
FS-A75FTXG2	Intel PGA988B+ QM67 Onboard VGA, LVDS, DVI, USB2.0, COM, HD Audio, SATAII ,SATAIII, SMBUS, LPC, IrDA, GPIO and PCI Express mini card, 2 x Giga LAN Support One X4 & One X16 PCI Express interface

The specifications may be different as the actual production.

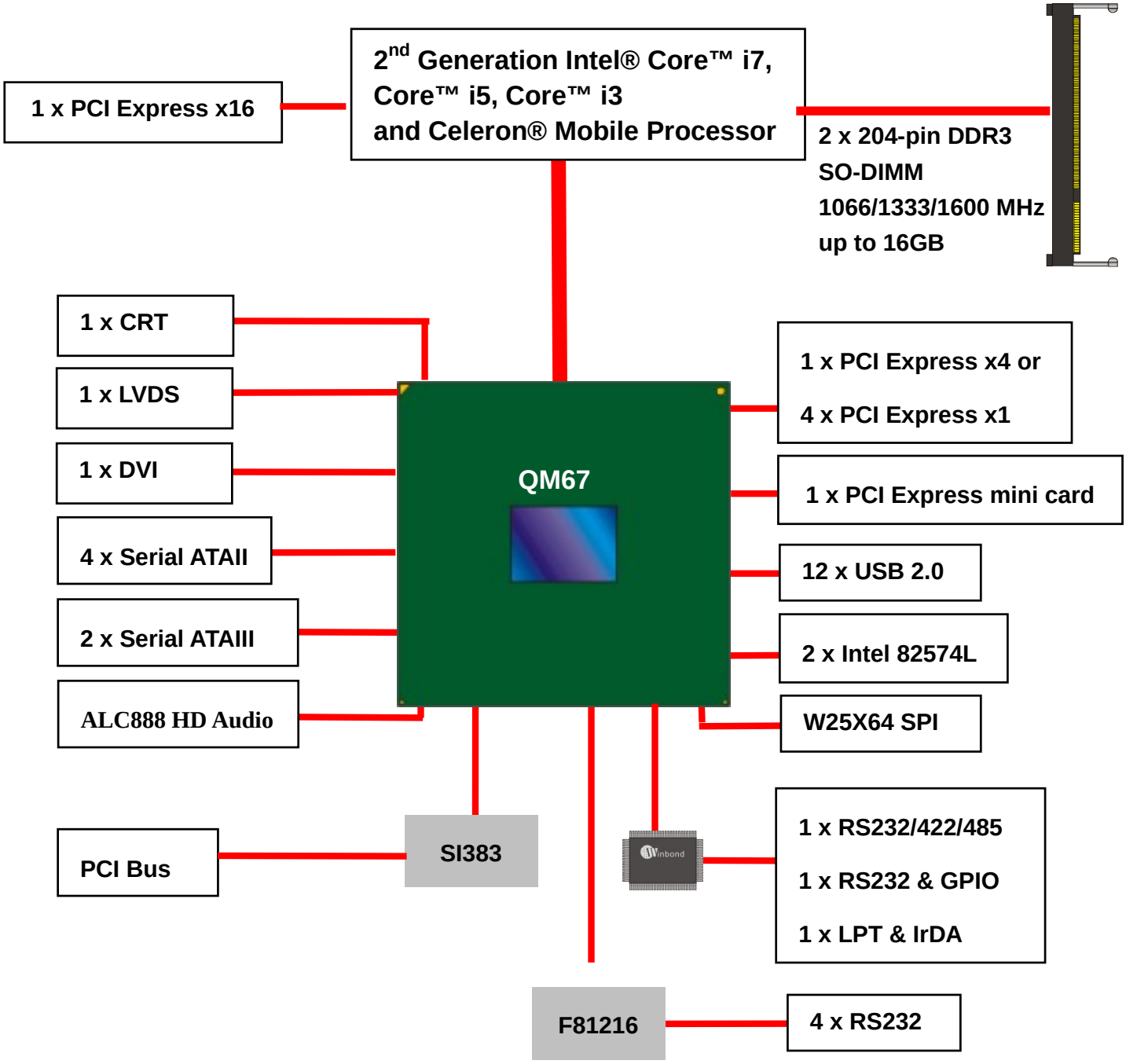
For further product information please visit the website at http://www.commell.com.tw

1.3 <Mechanical Drawing>



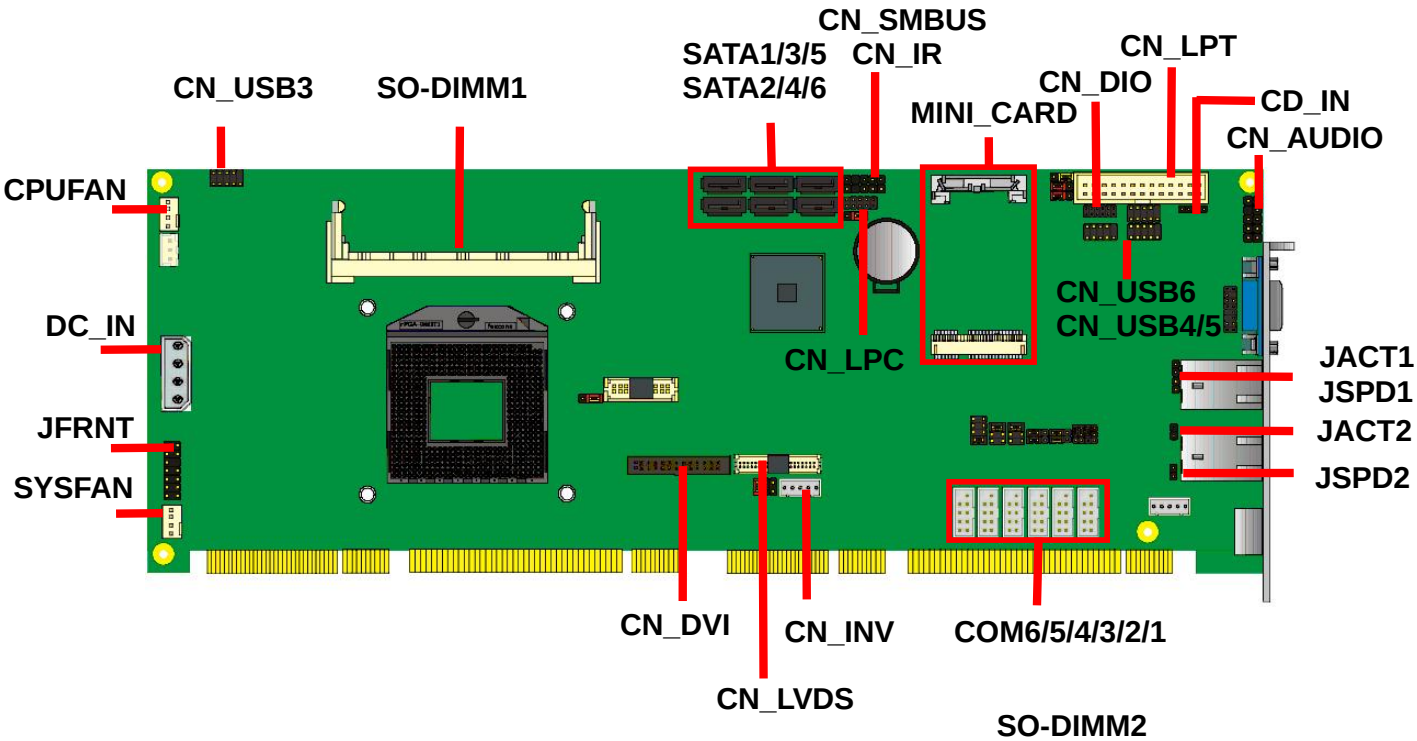
Unit: inch

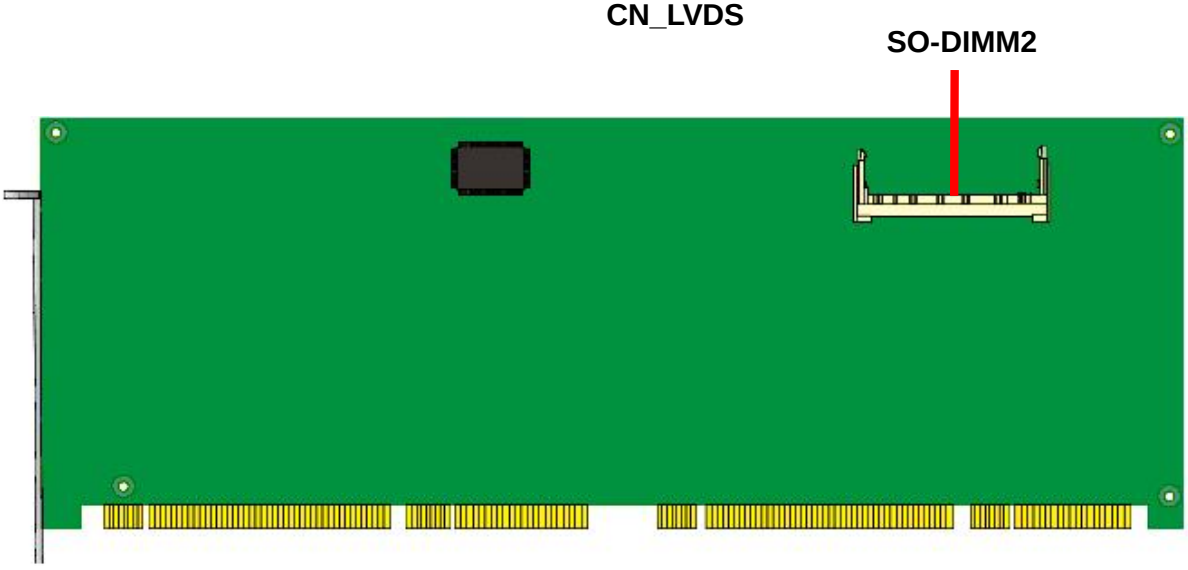
1.4 <Block Diagram>


1 x PCI Express x16
2nd Generation Intel® Core™ i7, Core™ i5, Core™ i3 and Celeron® Mobile Processor
2 x 204-pin DDR3 SO-DIMM 1066/1333/1600 MHz up to 16GB
1 x CRT
1 x LVDS
1 x DVI
4 x Serial ATAII
2 x Serial ATAIII
ALC888 HD Audio
QM67
1 x PCI Express x4 or 4 x PCI Express x1
1 x PCI Express mini card
12 x USB 2.0
2 x Intel 82574L
W25X64 SPI
PCI Bus
SI383
1 x RS232/422/485
1 x RS232 & GPIO
1 x LPT & IrDA
F81216
4 x RS232

Chapter 2 <Hardware Setup>

2.1 <Connector Location>



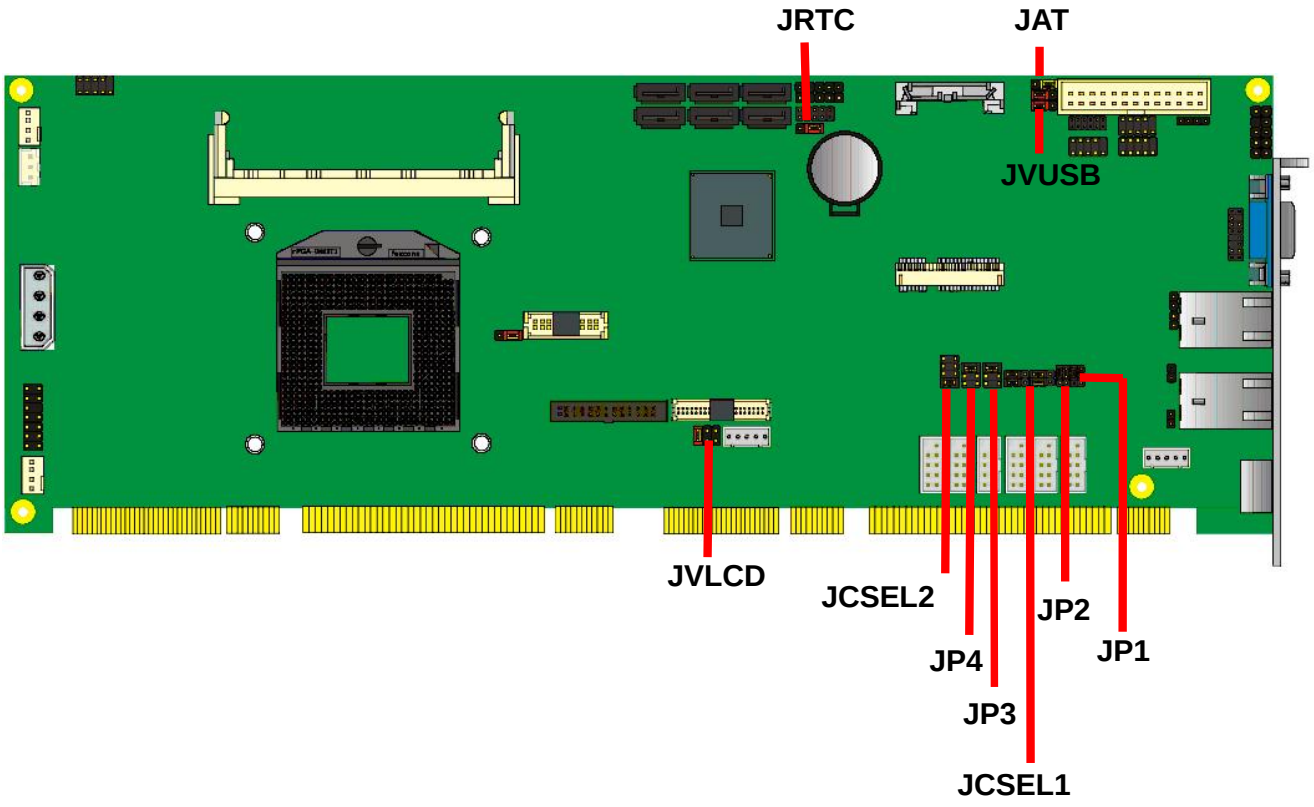


FS-A75TXG2

FS-A75TXG

2.2 <Jumper Location & Reference>

Jumper	Function
JRTC	CMOS Operating/Clear Setting
JVLCD	Panel Voltage Setting
JAT	Power mode select
JP1	Com1 Voltage Setting (For Pin 9)
JP2	Com2 Voltage Setting (For Pin 9)
JP3	Com3 Voltage Setting (For Pin 9)
JP4	Com4 Voltage Setting (For Pin 9)
JCSEL1 **JCSEL2**	CN_COM2 RS-232 RS422 RS485 Setting CN_IR IrDA Setting
JVUSB	USB Voltage Setting



2.3 <Connector Reference>

2.3.1 <Internal Connectors>

Connector	Function	Remark
CPU	Socket rPGA988B for PGA988 CPU	
SO-DIMM 1/2	204 -pin DDR3 SO-DIMM socket	
SATA 1/2	7-pin Serial ATAIII connector	
SATA 3/4/5/6	7-pin Serial ATAII connector	
DC_IN	4-pin power supply connector	
CN_AUDIO	5 x 2-pin audio connector	
CD_IN	4-pin CD-ROM audio input connector	
CN_DIO	6 x 2-pin digital I/O connector	
CN_USB 3/4/5/6	5 x 2-pin USB connector	
CPUFAN	4-pin CPU cooler fan connector	
SYSFAN	3-pin system cooler fan connector	
CN_LVDS	20 x 2-pin LVDS connector	
CN_INV	5-pin LCD inverter connector	
CN_IR	5-pin IrDA connector	
CN_COM 1/2/3/4/5/6	9-pin RS232	
CN_LPC	5 x 2-pin LPC connector	
JFRNT	14-pin front panel switch/indicator connector	
Mini-PCIE	2 x 52-pin Mini-PCIE socket	
JAT	Power mode select	
CN_LPT	13 x 2-pin printer connector	
JSPD 1/2	LAN Speed LED connector	
JACT 1/2	LAN Activity LED connector	

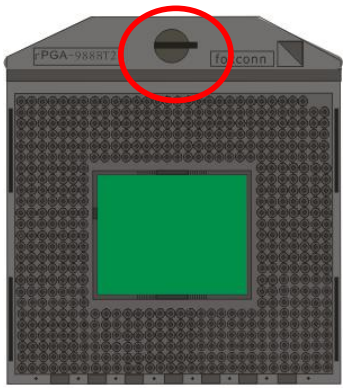
2.3.2 <External Connectors>

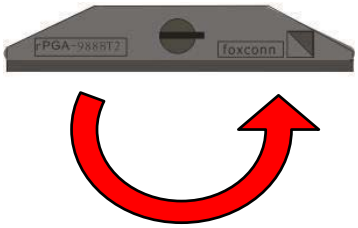
Connector	Function	Remark
RJ45 1/2	1 x RJ45 LAN connector	
CRT	DB15 and analog VGA connector	
PS/2	PS/2 keyboard and mouse connector	

2.4 <CPU and Memory Setup>

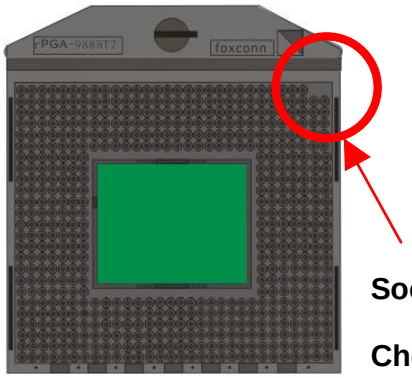
2.4.1 <CPU Setup>

The board comes with the socket rPGA988 for Intel **SandyBridge** Processor, Please follow the instruction to install the CPU properly.





Unlock way

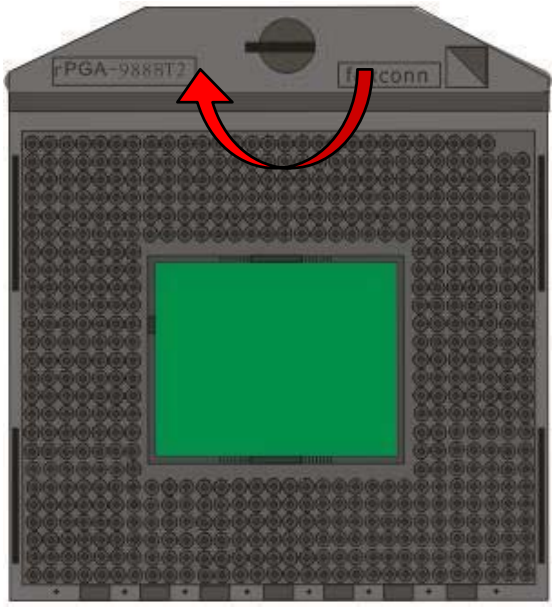


Socket CPU

Check point

1. Use the flat-type screw drive to unlock the CPU socket

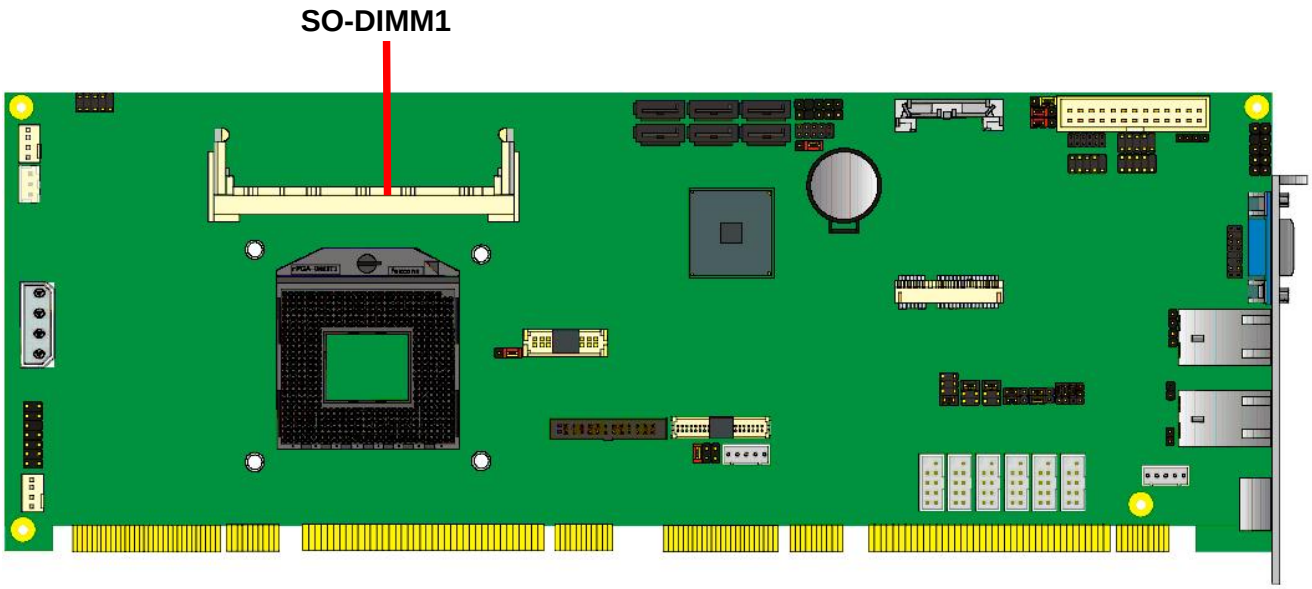
2. Follow the pin direction to install the processor on the socket

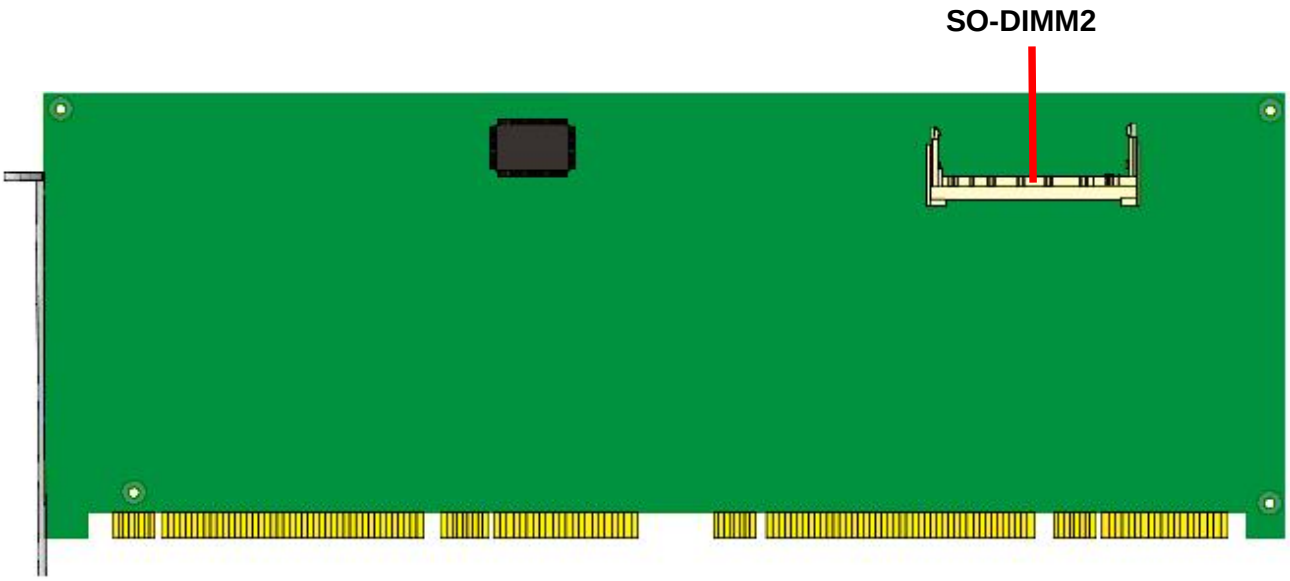


3. Lock the socket

2.4.2 <Memory Setup>

The board provides 2 x 204-pin DDR3 SO-DIMM to support 1066/1333/1600MHz DDR3 memory module up to 16GB.





2.5 <CMOS & ATX Setup>

The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRTC
Type: Onboard 3-pin jumper

JRTC	Mode
1-2	Clear CMOS
2-3	Normal Operation

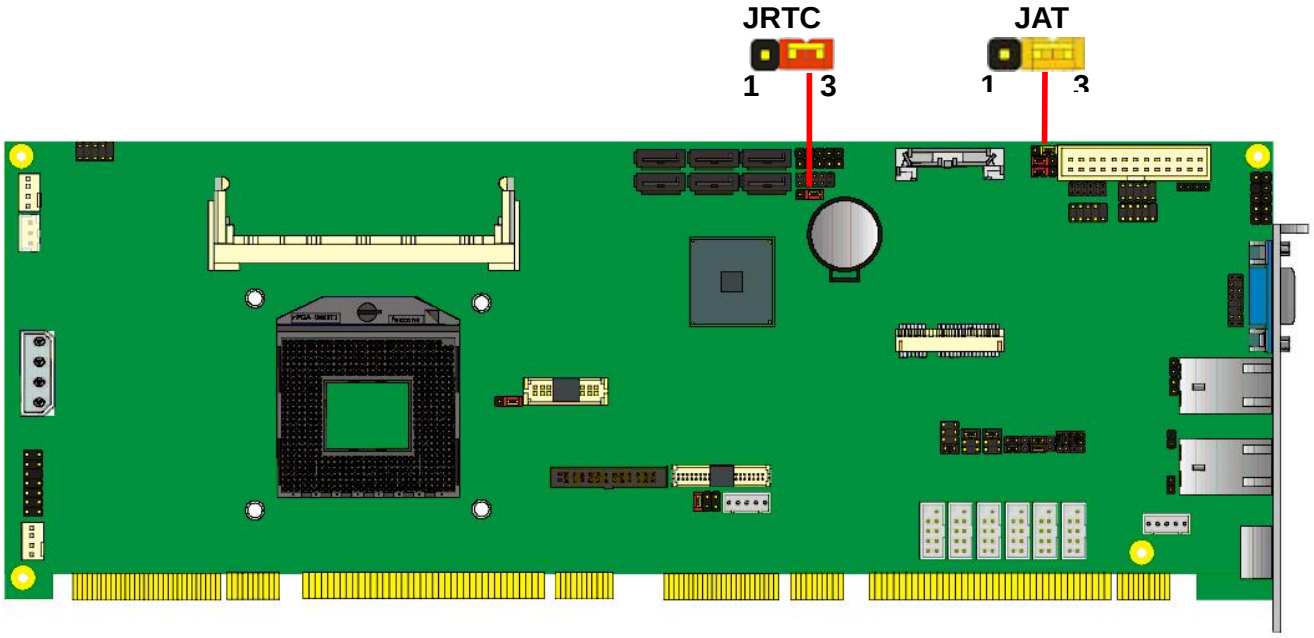
Default setting: 2-3

Jumper: JAT

Type: onboard 3-pin jumper

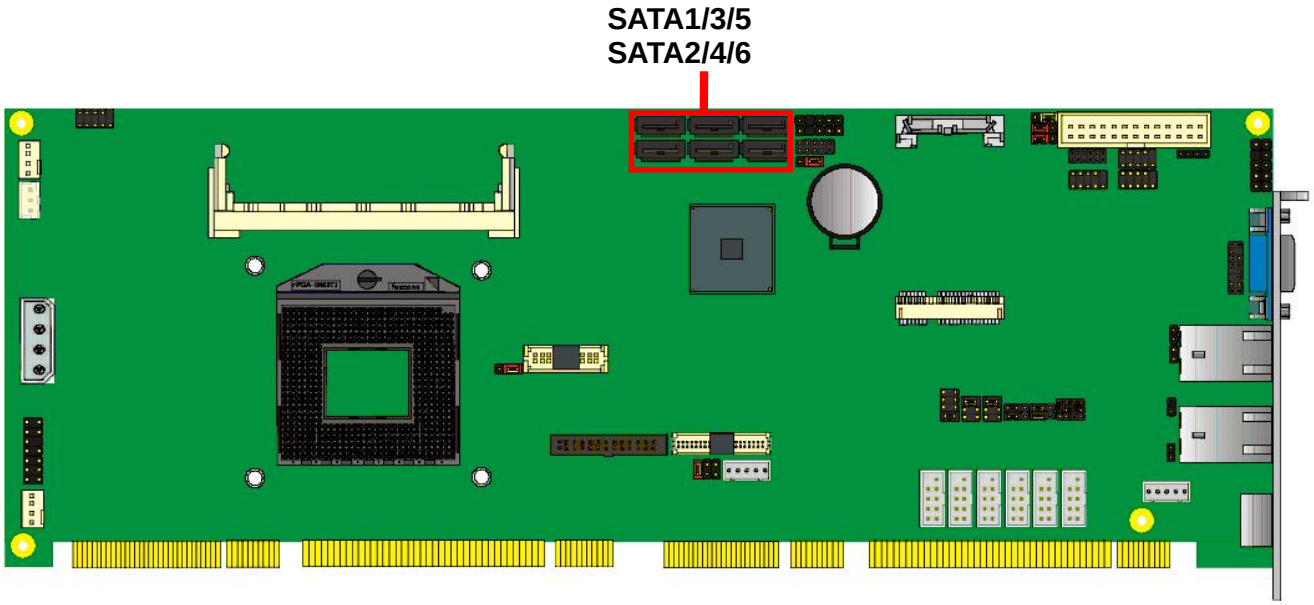
JAT	Mode
1-2	AT Mode
2-3	ATX Mode

Default setting:2-3



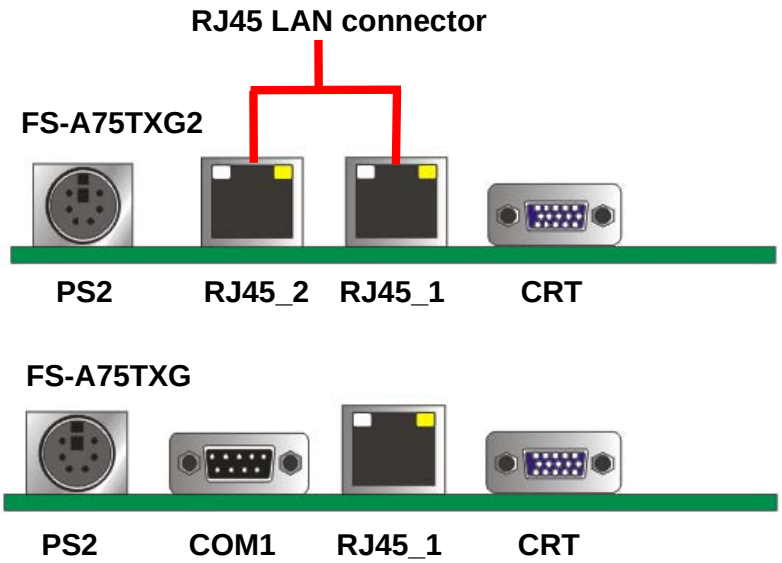
2.6 <Serial ATA Interface>

Based on Intel PCH, the board provides two Serial ATAIII(SATA Port1/2) interfaces with up to 600MB/s of transfer rate and four Serial ATAII(SATA Port3/4/5/6) interfaces with up to 300MB/s of transfer rate.



2.7 <Ethernet Interface>

The board integrates with two Intel PCI Express Gigabit Ethernet controllers, as the PCI Express x1 can speed up to 250MB/s of transfer rate instead of late PCI bus with 133MB/s of transfer rate. The Intel Gigabit Ethernet supports triple speed of 10/100/1000Base-T, with IEEE802.3 compliance and Wake-On-LAN supported.



2.8 <Onboard Display Interface>

Based on Intel **Sandy Bridge** CPU with built-in HD Graphic, the board provides one DB15 connector on real external I/O port, one 40-pin LVDS interface with 5-pin LCD backlight inverter connector and provides 26-pin DVI interface.

The board provides dual display function with clone mode and extended desktop mode for CRT, LCD and DVI.

2.8.1 <Analog Display>

Please connect your CRT or LCD monitor with DB15 male connector to the onboard DB15 female connector on rear I/O port .

FS-A75TXG2

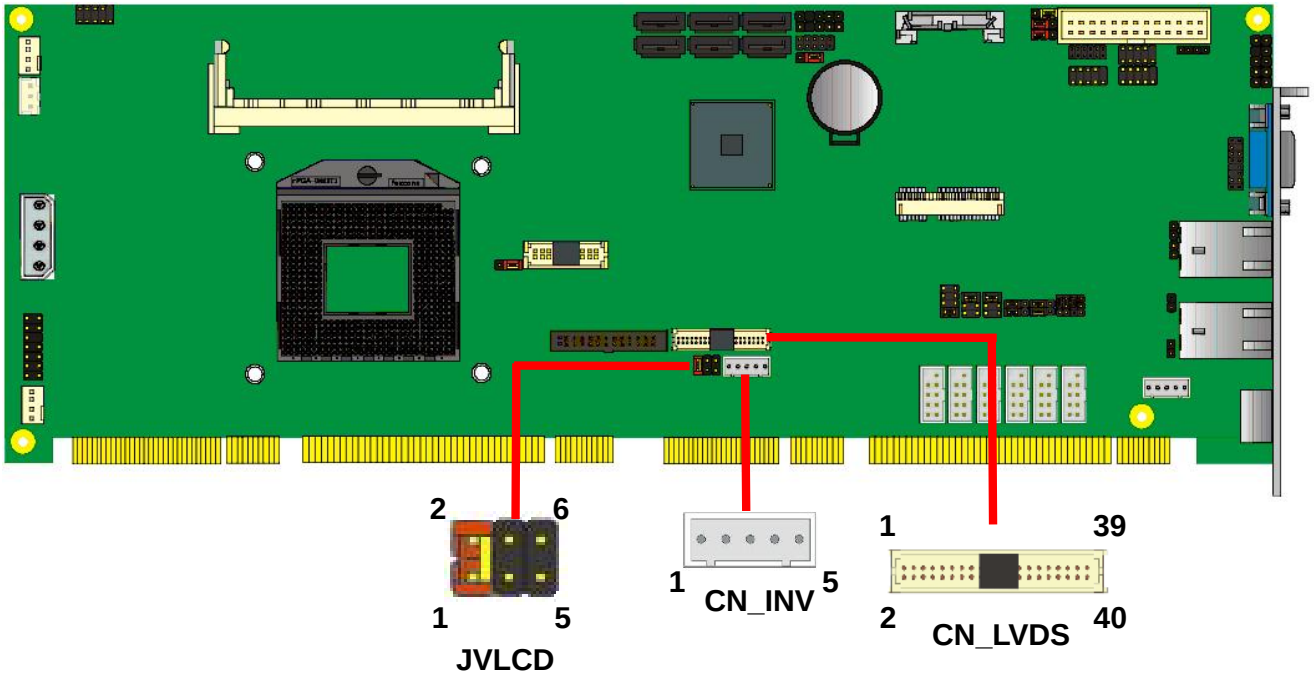
CRT

FS-A75TXG

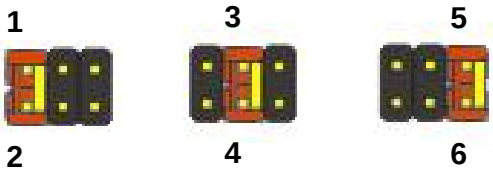
CRT

2.8.2 <Digital Display>

The board provides one 40-pin LVDS connector for 24-bit single/dual channel panels, supports up to 2048 x 1536 (UXGA) resolution, with one LCD backlight inverter connector and one jumper for panel voltage setting.



Effective patterns of connection: 1-2 / 3-4 / 5-6



Warning: others cause damages

Connector: **CN_INV**
Type: 5-pin LVDS Power Header

Pin	Description
1	+12V
2	Reserved (Note)
3	GND
4	GND
5	ENABKL

Note: Reserved for MB internal test
Please treat it as NC

Connector: **JVLCD**
Type: 6-pin Power select Header

Pin	Description
1-2	LCDVCC **(3.3V)**
3-4	LCDVCC **(5V)**
5-6	LCDVCC **(12V)**

Default: 1-2

Connector: **CN_LVDS**
Type: onboard 40-pin connector for LVDS connector
Connector model: **HIROSE DF13-40DP-1.25V**

Pin	Signal	Pin	Signal
2	LCDVCC	1	LCDVCC
4	GND	3	GND
6	ATX0-	5	BTX0-
8	ATX0+	7	BTX0+
10	GND	9	GND
12	ATX1-	11	BTX1-
14	ATX1+	13	BTX1+
16	GND	15	GND
18	ATX2-	17	BTX2-
20	ATX2+	19	BTX2+
22	GND	21	GND
24	ACLK-	23	BTX3-
26	ACLK+	25	BTX3+
28	GND	27	GND
30	ATX3-	29	BCLK-
32	ATX3+	31	BCLK+
34	GND	33	GND
36	DDCPCLK	35	SMBCKL
38	DDCPDATA	37	SMBDATA
40	N/C	39	SPDIFO

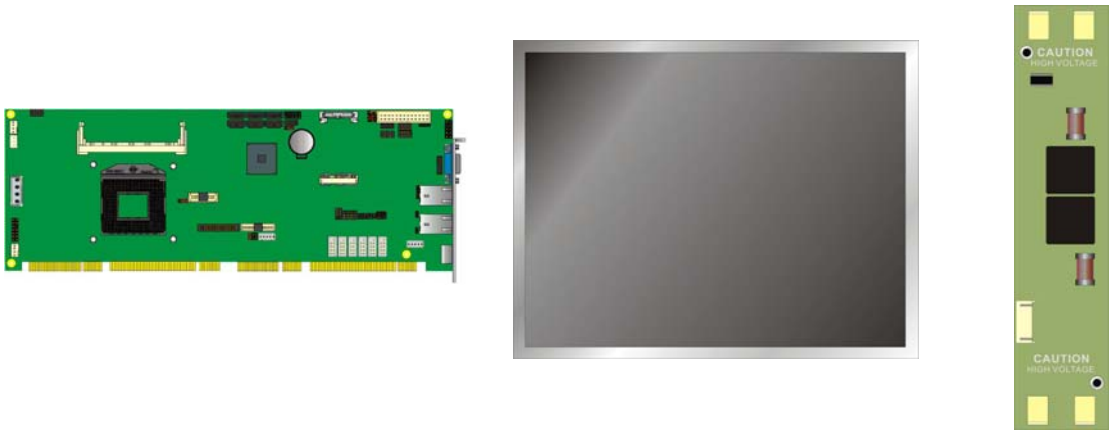
To setup the LCD, you need the component below:

1. A panel with LVDS interfaces.
2. An inverter for panel's backlight power.
3. A LCD cable and an inverter cable.

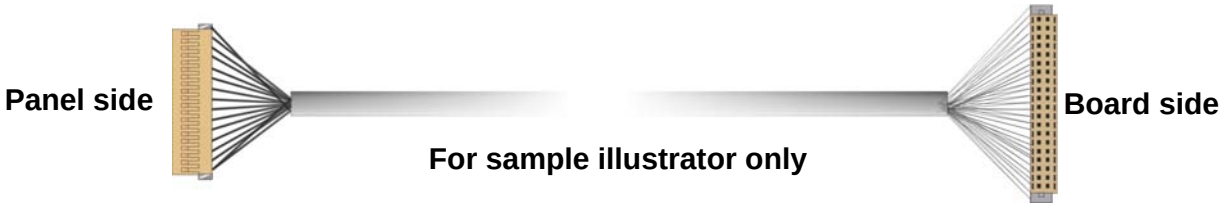
For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

LCD Installation Guide:

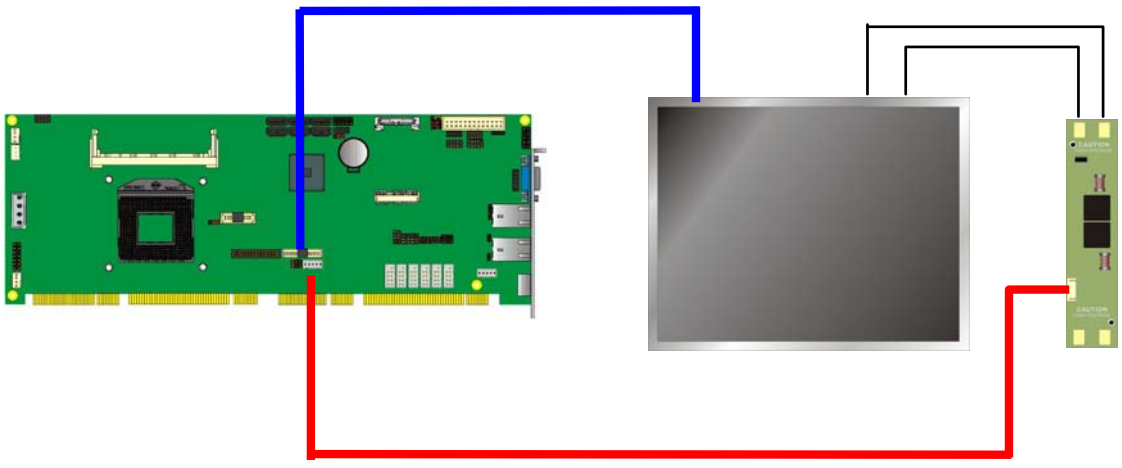
1. Preparing the **FS-A75**, **LCD panel** and the **backlight inverter**.



2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JVLCD** to +12V or +5V or +3.3V.
3. You would need a LVDS type cable.



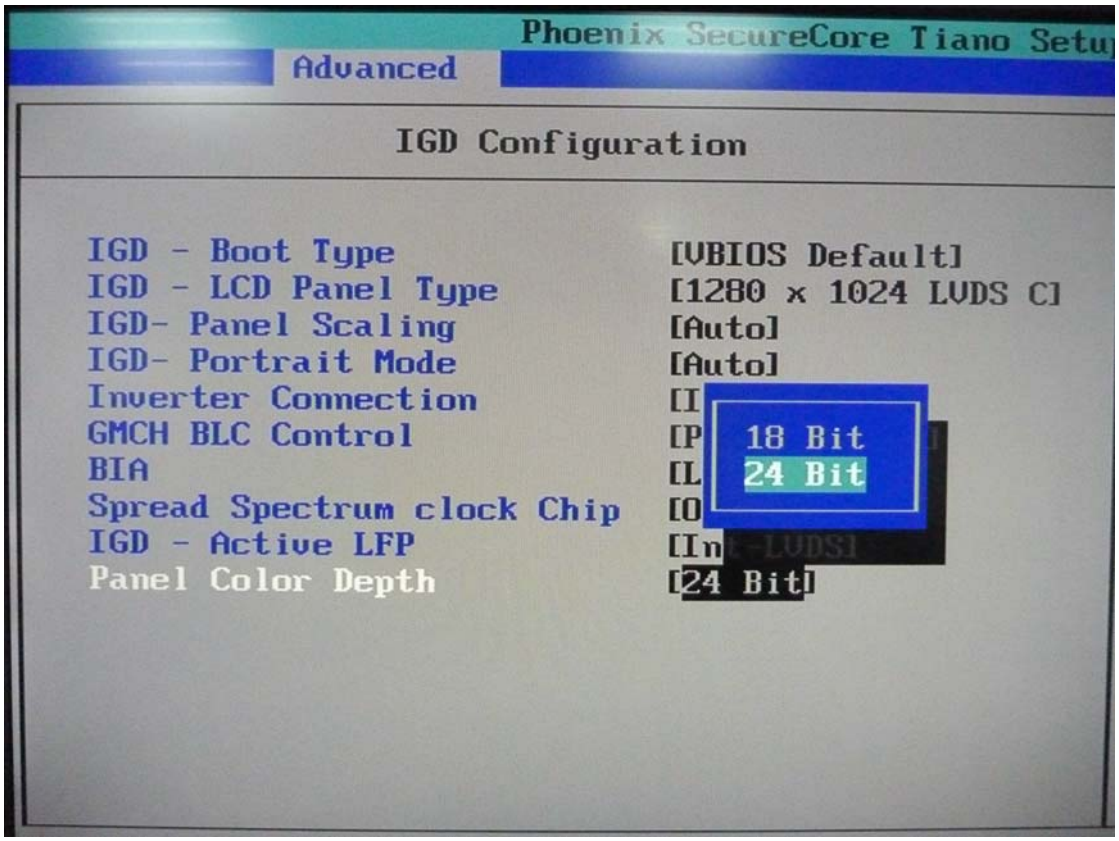
4. To connect all of the devices well.



After setup the devices well, you need to select the LCD panel type in the BIOS.

The panel type mapping is list below:

BIOS panel type selection form (BIOS Version:1.0)			
Single / Dual channel		Single / Dual channel	
NO.	Output format	NO.	Output format
1	640 x 480	9	1680 x 1050
2	800 x 600	10	1920 x 1200
3	1024 x 768	11	1440 x 900
4	1280 x 1024	12	1600 x 900
5	1400 x 1050 Reduced Blanking	13	OEM Keep
6	1400 x 1050 non-Reduced Blanking	14	1280 x 800
7	1680 x 1200	15	1920 x 1080
8	1366 x 768	16	2048 x 1536

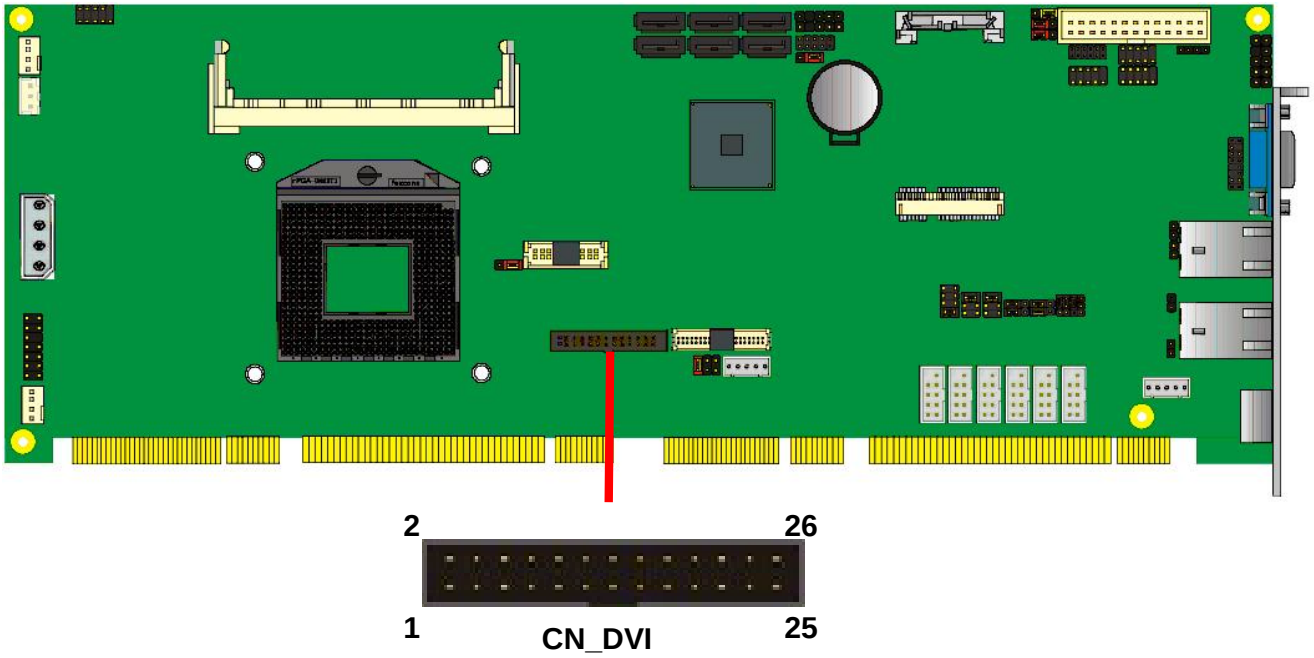


2.8.3 <DVI Interface>

Connector: **CN_DVI**

Connector type: 26-pin header connector (pitch = 2.00mm)

Pin Number	Assignment	Pin Number	Assignment
1	TX1+	2	TX1-
3	Ground	4	Ground
5	TXC+	6	TXC-
7	Ground	8	PVDD
9	N/C	10	N/C
11	TX2+	12	TX2-
13	Ground	14	Ground
15	TX0+	16	TX0-
17	N/C	18	HPDET
19	DDCDATA	20	DDCCLK
21	GND	22	N/C
23	N/C	24	N/C
25	N/C	26	N/C



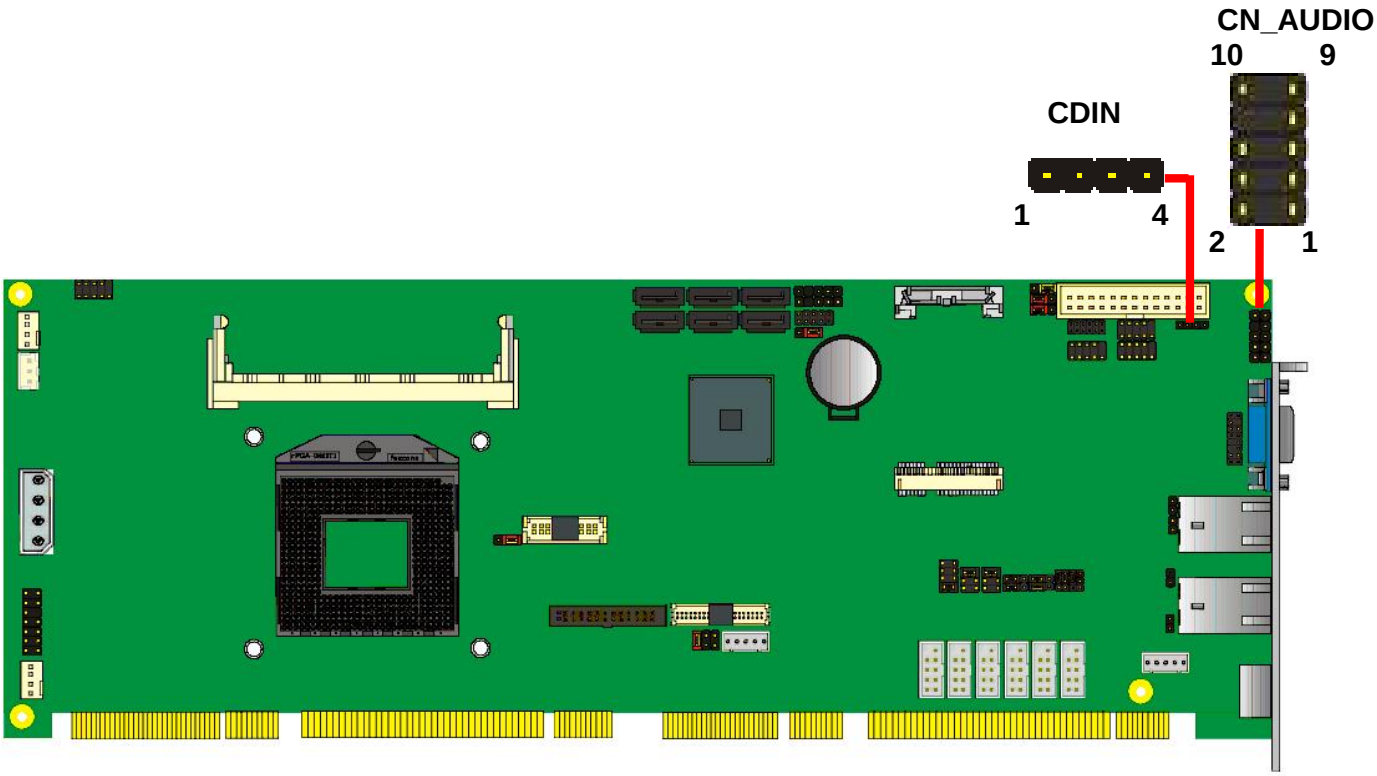
2.9 <Integrated Audio Interface>

The board integrates onboard audio interface with REALTEK ALC888 code, with Intel next generation of audio standard as High Definition Audio, it offers more vivid sound and other advantages than former HD audio compliance.

The main specifications of ALC888 are:

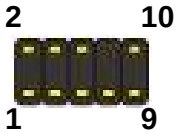
- **High-performance DACs with 100dB S/N ratio**
- **2 DAC channels support 16/20/24-bit PCM format for 2 audio solution**
- **16/20/24-bit S/PDIF-OUT supports 44.1K/48K/96kHz sample rate**
- **Compatible with HD**
- **Meets Microsoft WHQL/WLP 2.0 audio requirements**

The board provides 2 channels audio phone jacks on rear I/O port, Line-in/MIC-in ports for front I/O panel through optional cable.



Connector: CN_AUDIO

Type: 10-pin (2 x 5) header (pitch = 2.54mm)



Pin	Description	Pin	Description
1	MIC_L	2	Ground
3	MIC_R	4	N/C
5	Speaker_R	6	MIC Detect
7	SENSE	8	N/C
9	Speaker_L	10	Speaker Detect

Connector: CDIN

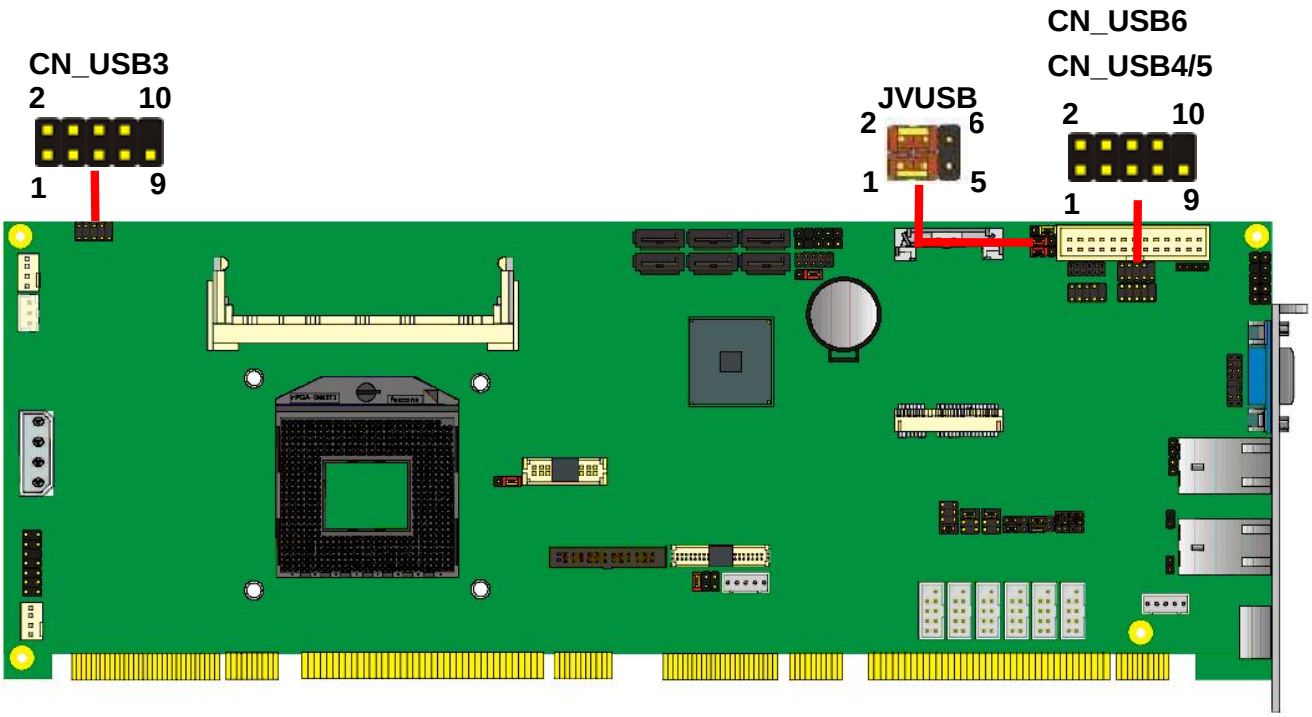
Type: 4-pin header (pitch = 2.54mm)

Pin	Description
1	CD – Left
2	Ground
3	Ground
4	CD – Right

2.10 <USB Interface>

FS-A75 integrates eight USB2.0 ports. The specifications of USB2.0 are listed below:

Interface	USB2.0
Controller	Intel® QM67
Transfer Rate	Up to 480Mb/s
Voltage	5V



Connector: **CN_USB3/4/5/6**

Type: 10-pin (2 x 5) header (pitch = 2.54mm)

Pin	Description	Pin	Description
1	VCC (5V_SB/ 5V)	2	VCC (5V_SB/ 5V)
3	Data0-	4	Data1-
5	Data0+	6	Data1+
7	Ground	8	Ground
9	Ground	10	N/C

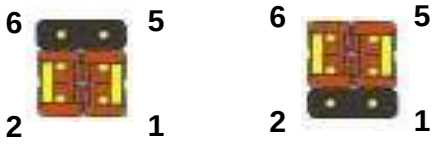
Connector: **JVUSB**

Type: 6-pin Power select jumper

Pin	Description
1-3 & 2-4	5V_SB
3-5 & 4-6	5V

Default: 1-3 & 2-4

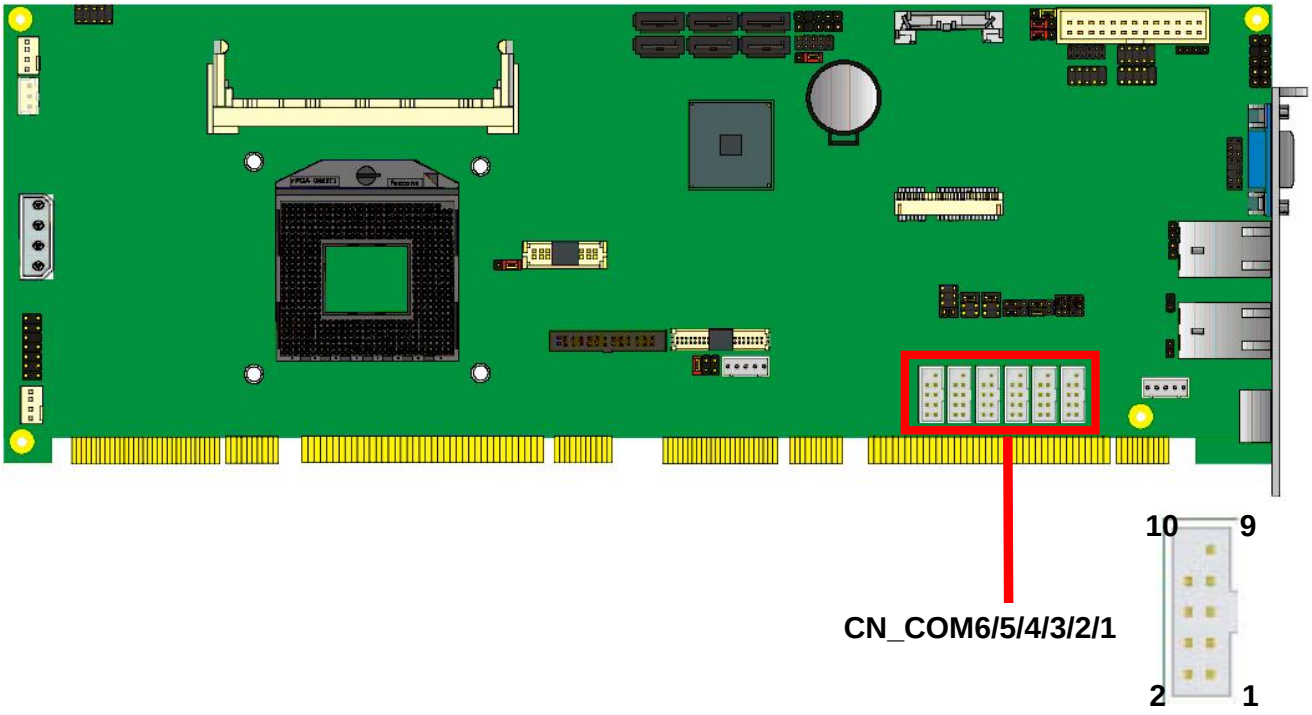
Effective patterns of connection: 1-3 & 2-4 or 3-5 & 4-6



Warning: others cause damages

2.11 <Serial Port>

The board supports five RS232 serial port and one jumper selectable RS232/422/485 serial ports. The jumper JCSEL1 & JCSEL2 can let you configure the communicating modes for COM2.



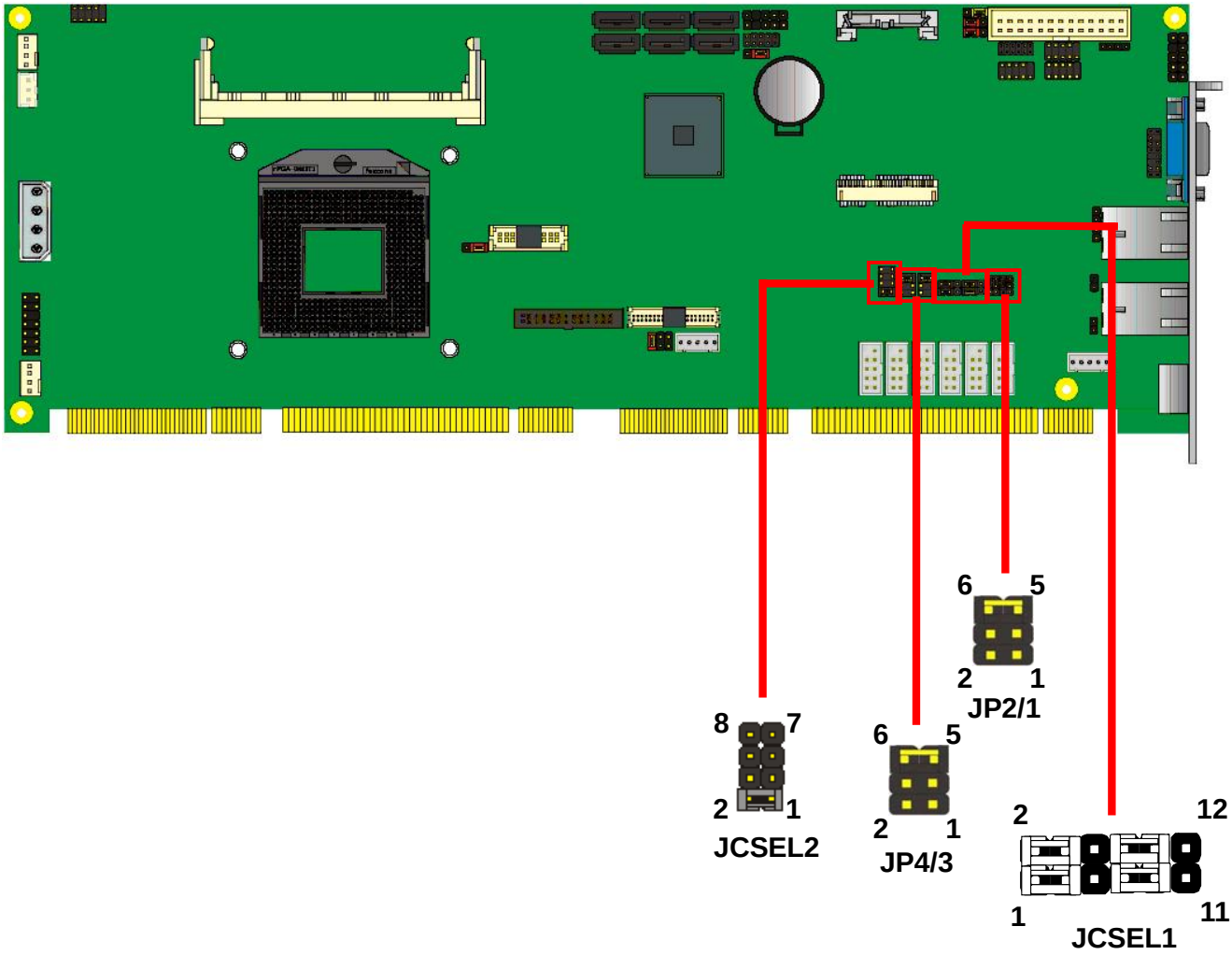
Connector: **COM1/3/4/5/6**
Type: 9-Pin box header

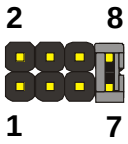
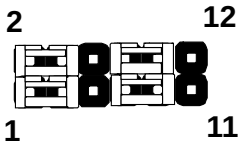
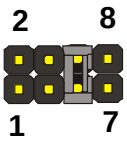
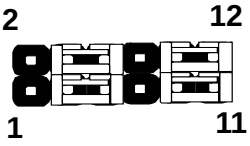
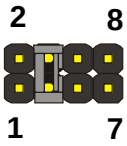
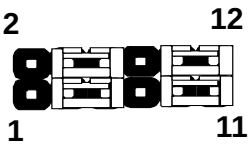
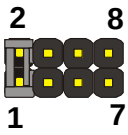
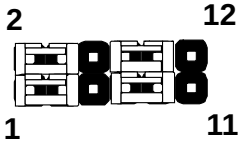
Pin	Description	Pin	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

Connector: **COM2**
Type: 9-Pin box header

Pin	Description	Pin	Description
1	DCD/422TX-/485-	2	RXD/422TX+/485+
3	TXD/422RX+	4	DTR/422RX-
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N/C

Setting RS-232 & RS-422 & RS-485 for COM2


6
5
2
1
JP2/1
8
7
2
1
JCSEL2
6
5
2
1
JP4/3
2
12
1
11
JCSEL1

Function	JCSEL2	JCSEL1
IrDA		
RS-422		
RS-485		
RS-232		

Default setting:

JCSEL1: (1-3, 2-4, 7-9, 8-10) JCSEL2: (1-2)

Jumper: **JP1/JP2/JP3/JP4 (COM1/2/3/4)**
Type: onboard 6-pin header

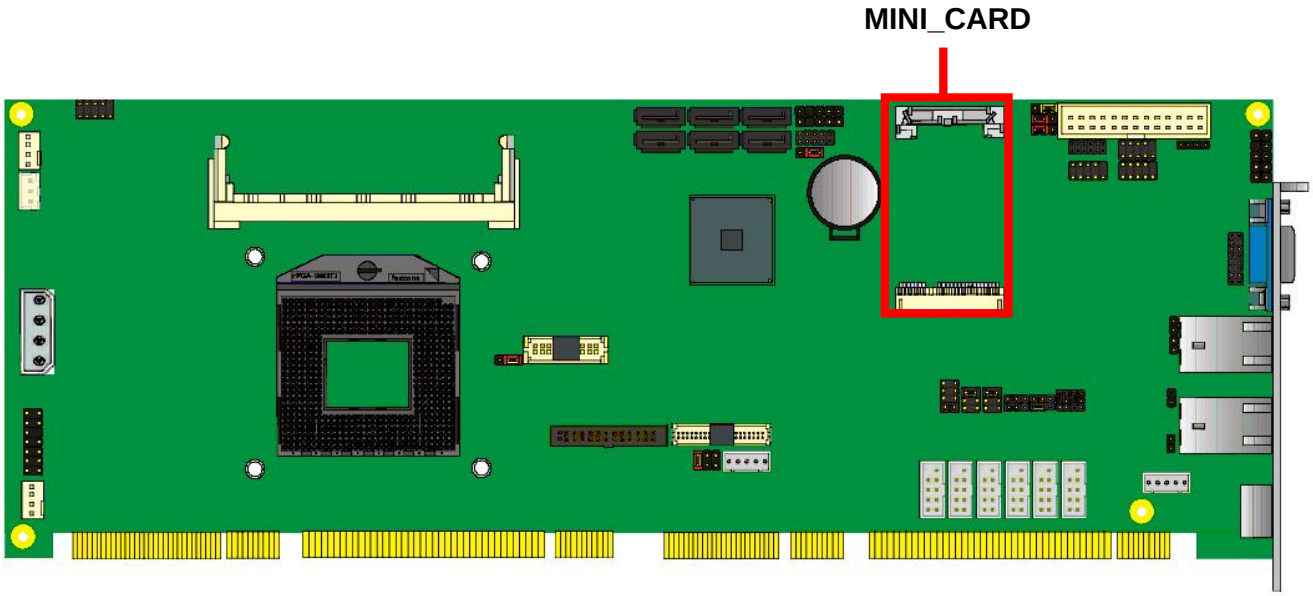
Power Mode	JP1/2/3/4
Pin 9 with 5V Power	1-2
Pin 9 with 12V Power	3-4
Standard COM port	**5-6** **Default setting**

2.12 <PCIE Mini Card and SIM Interface>

The board provides two PCIE mini card sockets and a SIM socket.

MINI_CARD support MPX-SDVOD /MPX-SDVOX.

Default: support MPX-SDVOD



2.13 <GPIO and SMBUS Interface>

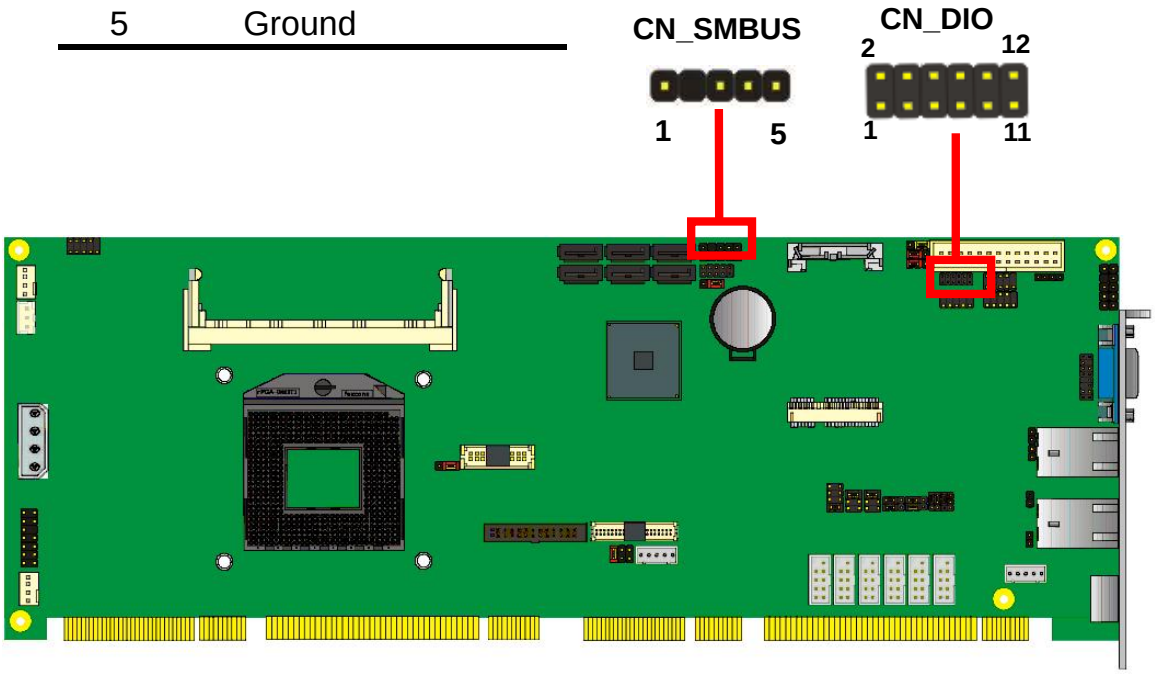
The board provides a programmable 8-bit digital I/O interface; you can use this general purpose I/O port for system control like POS or KIOSK.

Connector: **CN_DIO**
Type: 12-pin (6 x 2) header (pitch = 2.0mm)

Pin	Description	Pin	Description
1	Ground	2	Ground
3	GP10	4	GP14
5	GP11	6	GP15
7	GP12	8	GP16
9	GP13	10	GP17
11	5V	12	12V

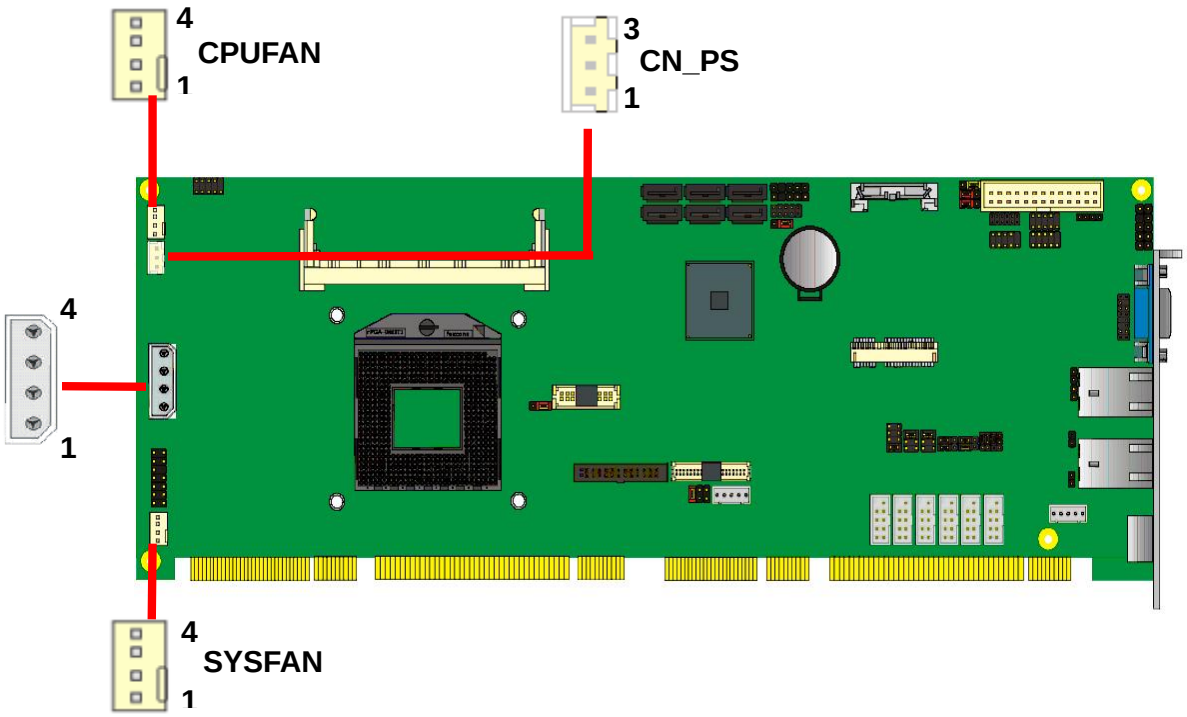
Connector: **CN_SMBUS**
Type: 5-pin header for SMBUS Ports

Pin	Description
1	VCC
2	N/C
3	SMBDATA
4	SMBCLK
5	Ground



2.14 <Power Supply and Fan Interface >

The **FS-A75** provides a standard ATX power supply with **4-pin** ATX connector and the board provides one 4**-pin** fan connector supporting smart fan for CPU cooler and one 4-pin cooler fan connectors for system and Northbridge chip. please connect this well before you finishing the system setup.



Connector: **DC_IN**
Type: 4-pin DC power connector

Pin	Description	Pin	Description
1	+12V	2	Ground
3	Ground	4	+5V

Connector: **CPUFAN**
Type: 4-pin fan wafer connector

Pin	Description	Pin	Description
1	Ground	2	+12V
3	Fan Speed Detection	4	Fan Control

Connector: **SYSFAN**
Type: 3-pin fan wafer connector

Pin	Description	Pin	Description
1	Ground	2	+12V
3	Fan Speed Detection	4	Will be defined

Connector: **CN_PS**
Type: 3-pin connector

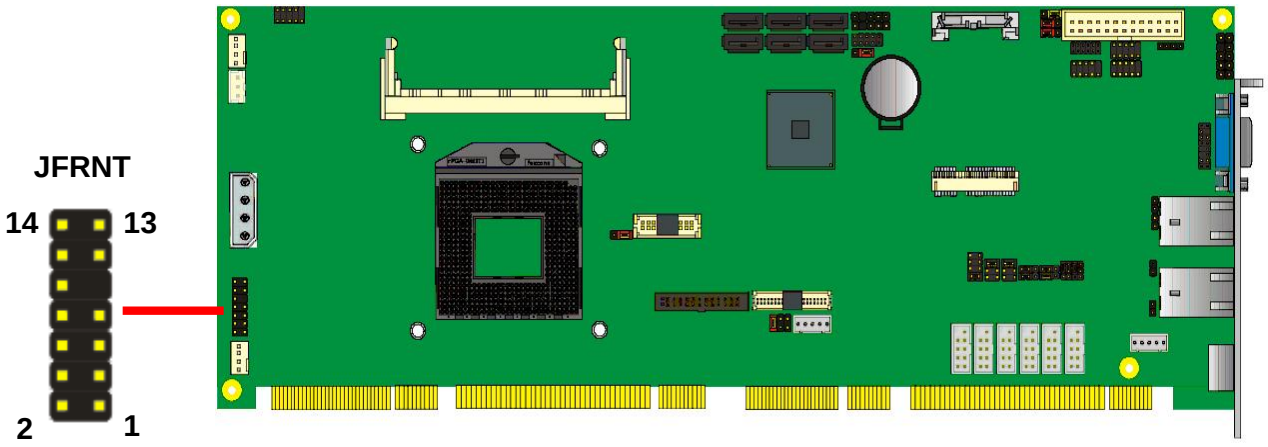
Pin	Description	Pin	Description	Pin	Description
1	5VSTBY	2	Ground	3	PSON

2.15 <Switch and Indicator>

The **JFRNT** provides front control panel of the board, such as power button, reset and beeper, etc. Please check well before you connecting the cables on the chassis.

Connector: **JFRNT**
Type: onboard 14-pin (2 x 7) 2.54-pitch header

Function	Signal	PIN		Signal	Function
IDE LED	HDLED+	1	2	PWRLED+	**Power LED**
	HDLED-	3	4	N/C	
Reset	Reset+	5	6	PWRLED-	
	Reset-	7	8	SPK+	**Speaker**
	N/C	9	10	N/C	
Power Button	PWRBT+	11	12	N/C	
	PWRBT-	13	14	SPK-	

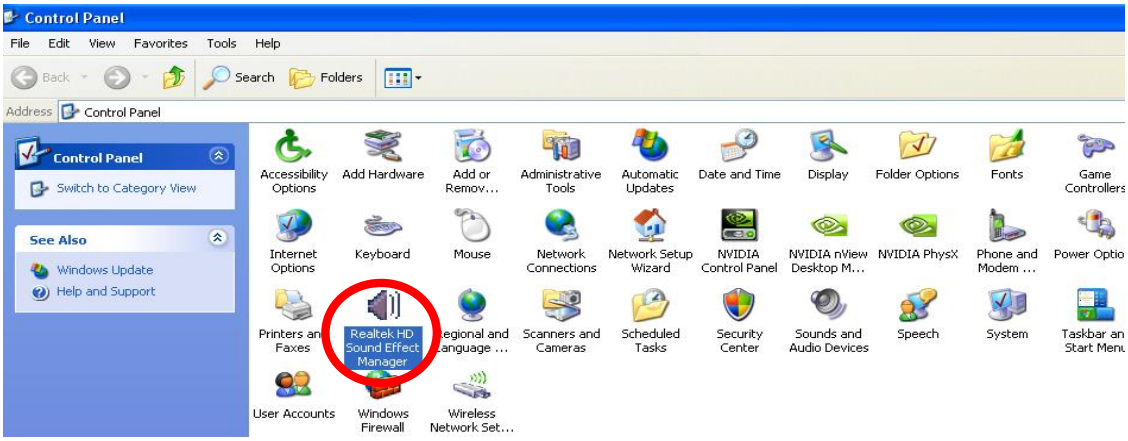


Chapter 3 <System Setup>

3.1 <Audio Configuration>

The board integrates Intel® QM67 with REALTEK® ALC888 code. It can support 2-channel sound under system configuration. Please follow the steps below to setup your sound system.

1. Install REALTEK HD Audio driver.
2. Lunch the control panel and Sound Effect Manager.



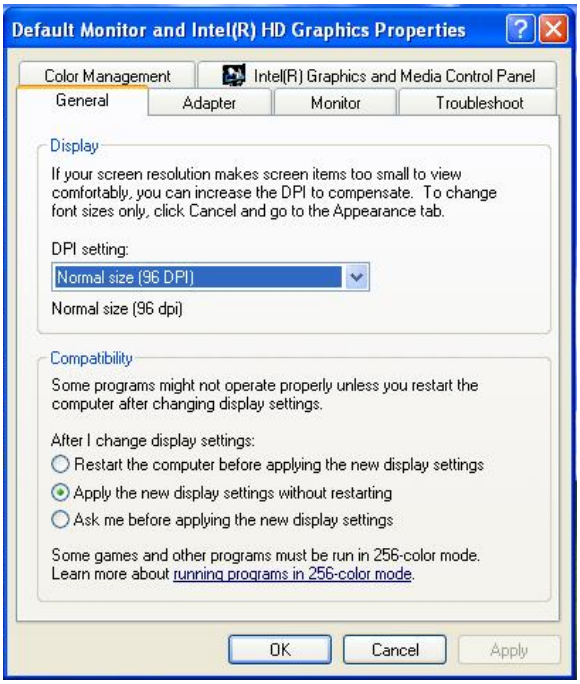
3. Select Speaker Configuration

3.2 <Display Properties Setting>

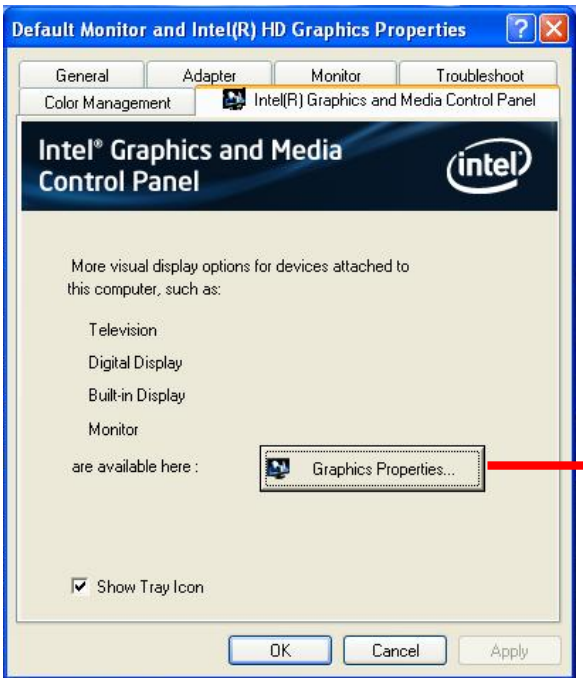
Based on Intel QM67 with HD Graphic, the board supports two DACs for display device as different resolution and color bit.

Please install the Intel Graphic Driver before you starting setup display devices.

1. Click right button on the desktop to lunch **display properties**


Default Monitor and Intel(R) HD Graphics Properties
Color Management
Intel(R) Graphics and Media Control Panel
General
Adapter
Monitor
Troubleshoot
Display
If your screen resolution makes screen items too small to view comfortably, you can increase the DPI to compensate. To change font sizes only, click Cancel and go to the Appearance tab.
DPI setting:
Normal size (96 DPI)
Normal size (96 dpi)
Compatibility
Some programs might not operate properly unless you restart the computer after changing display settings.
After I change display settings:
Restart the computer before applying the new display settings
Apply the new display settings without restarting
Ask me before applying the new display settings
Some games and other programs must be run in 256-color mode.
Learn more about running programs in 256-color mode.
OK
Cancel
Apply

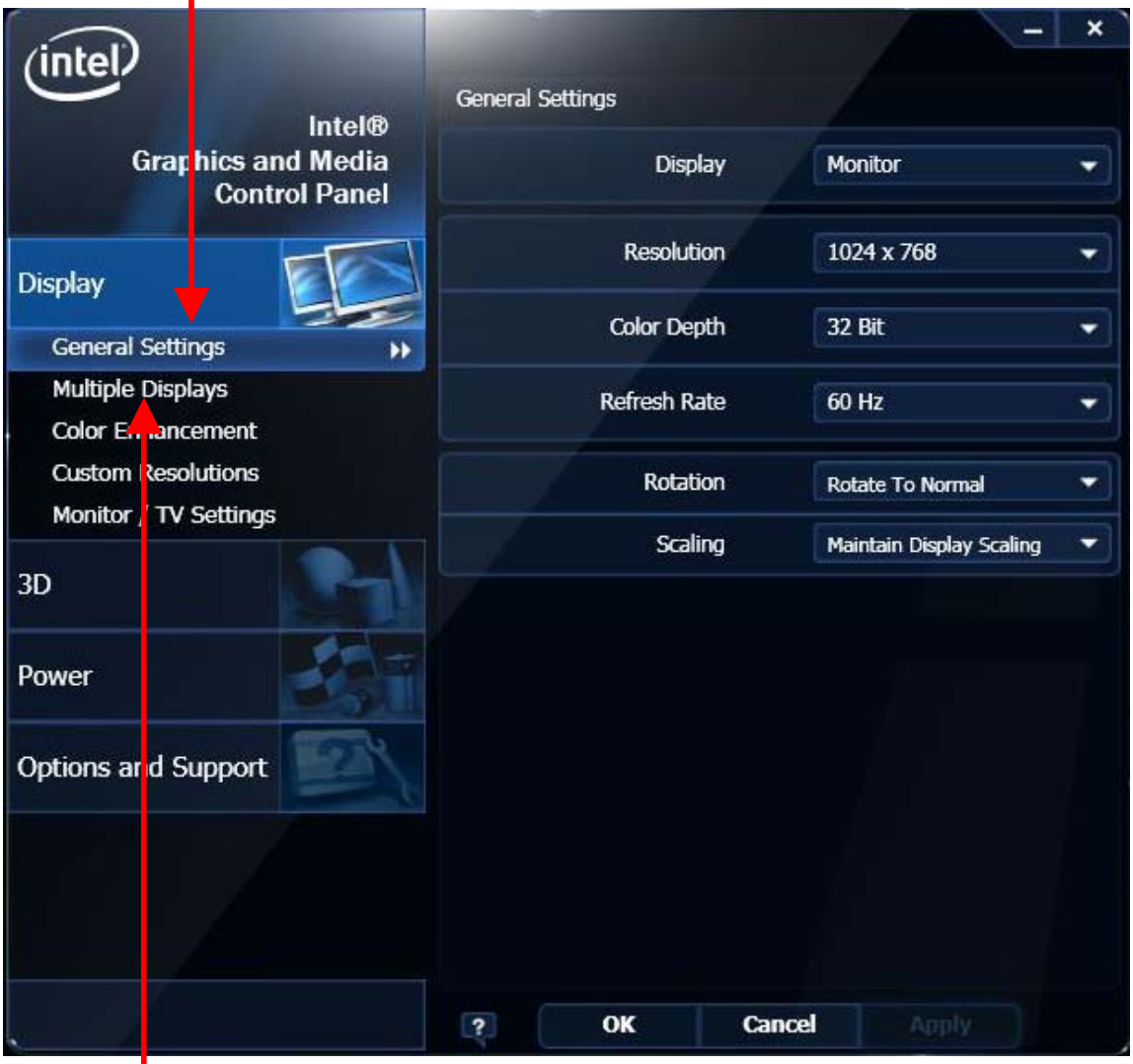
2. Click **Advanced** button for more specificity setup.



Click Graphics Properties... for advanced setup

3. This setup options can let you define each device settings.

Click Monitor to setup the CRT monitor for Resolution and Refresh Rate



Click Intel® Dual Display Clone to setup the dual display mode as same screen

Chapter 4 <BIOS Setup>

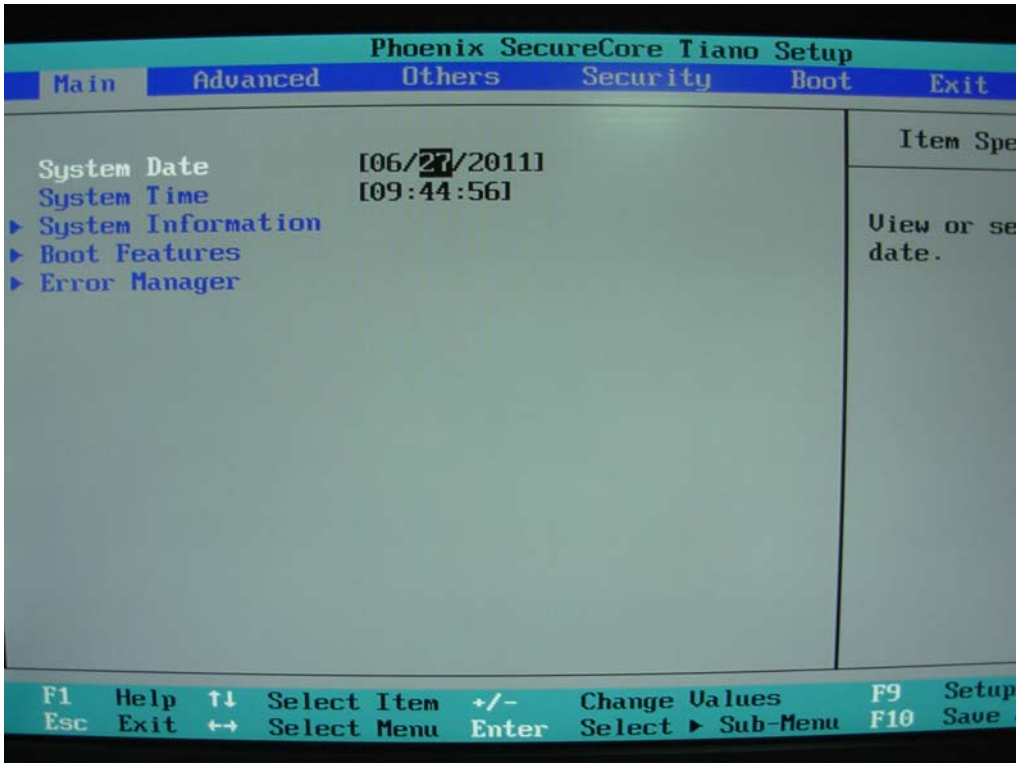
The motherboard uses the Phoenix BIOS for the system configuration. The Phoenix BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting.

The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press ＜DEL＞ key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as **Figure 4-1**. You can use arrow keys to select your function, press ＜Enter＞ key to accept the selection and enter the sub-menu.

Figure 4-1 CMOS Setup Utility Main Screen



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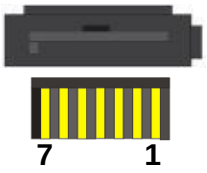
Appendix A <I/O Port Pin Assignment>

A.1 <Serial ATA Port>

Connector: **SATA1/2/3/4/5/6**

Type: 7-pin wafer connector



1	2	3	4	5	6	7
GND	RSATA_TXP1	RSATA_TXN1	GND	RSATA_RXN1	RSATA_RXP1	GND

A.2 <IrDA Port>

Connector: **CN_IR**

Type: 5-pin header for SIR Ports

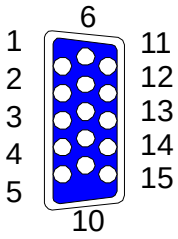
JCSEL1 must jump to "SIR"

Pin	Description
1	VCC
2	N/C
3	IRRX
4	Ground
5	IRTX

A.3 <VGA Port>

Connector: **CRT**

Type: 15-pin D-sub female connector on bracket

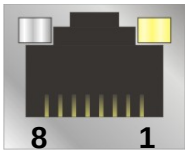


Pin	Description	Pin	Description	Pin	Description
1	RED	6	Ground	11	N/C
2	GREEN	7	Ground	12	DDCDA
3	BLUE	8	Ground	13	HSYNC
4	N/C	9	N/C	14	VSYNC
5	Ground	10	Ground	15	DDCCLK

A.4 <LAN Port>

Connector: **RJ45**

Type: RJ45 connector with LED on bracket



Pin	1	2	3	4	5	6	7	8
Description	MI0+	MI0-	MI1+	MI2+	MI2-	MI1-	MI3+	MI3-

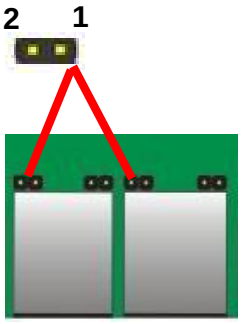
A.5 <LAN LED Port>

Connector: **JSPD1/2**

Type: 5-pin header for LAN Speed LED connector

When Lan speed 10/100Mbps

Pin	Description
1	LED-
2	LED+



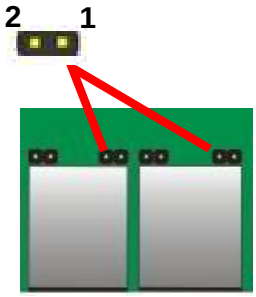
When Lan speed 1Gbps

Pin	Description
1	LED+
2	LED-

Connector: **JATC1/2**

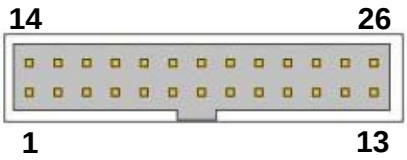
Type: 5-pin header for LAN Activity LED connector

Pin	Description
1	LED-
2	LED+



A.6 <Parallel Port>

Connector: **LPT**



Type: 26-Pin box header

Pin	Description	Pin	Description
1	-PSTB	14	AFD-
2	PRO0	15	ERR-
3	PRO1	16	INT-
4	PRO2	17	SLIN-
5	PRO3	18	Ground
6	PRO4	19	Ground
7	PRO5	20	Ground
8	PRO6	21	Ground
9	PRO7	22	Ground
10	ACK-	23	Ground
11	BUSY	24	Ground
12	PE	25	Ground
13	SLCT	26	N/C

Appendix B <Flash BIOS>

B.1 <Flash Tool>

The board is based on Phoenix BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

http://www.phoenix.com/en/home/
http://www.commell.com.tw/Support/Support_SBC.htm

File name of the tool is "Phlash16.exe", it's the utility that can write the data into the BIOS flash ship and update the BIOS.

B.2 <Flash BIOS Procedure>

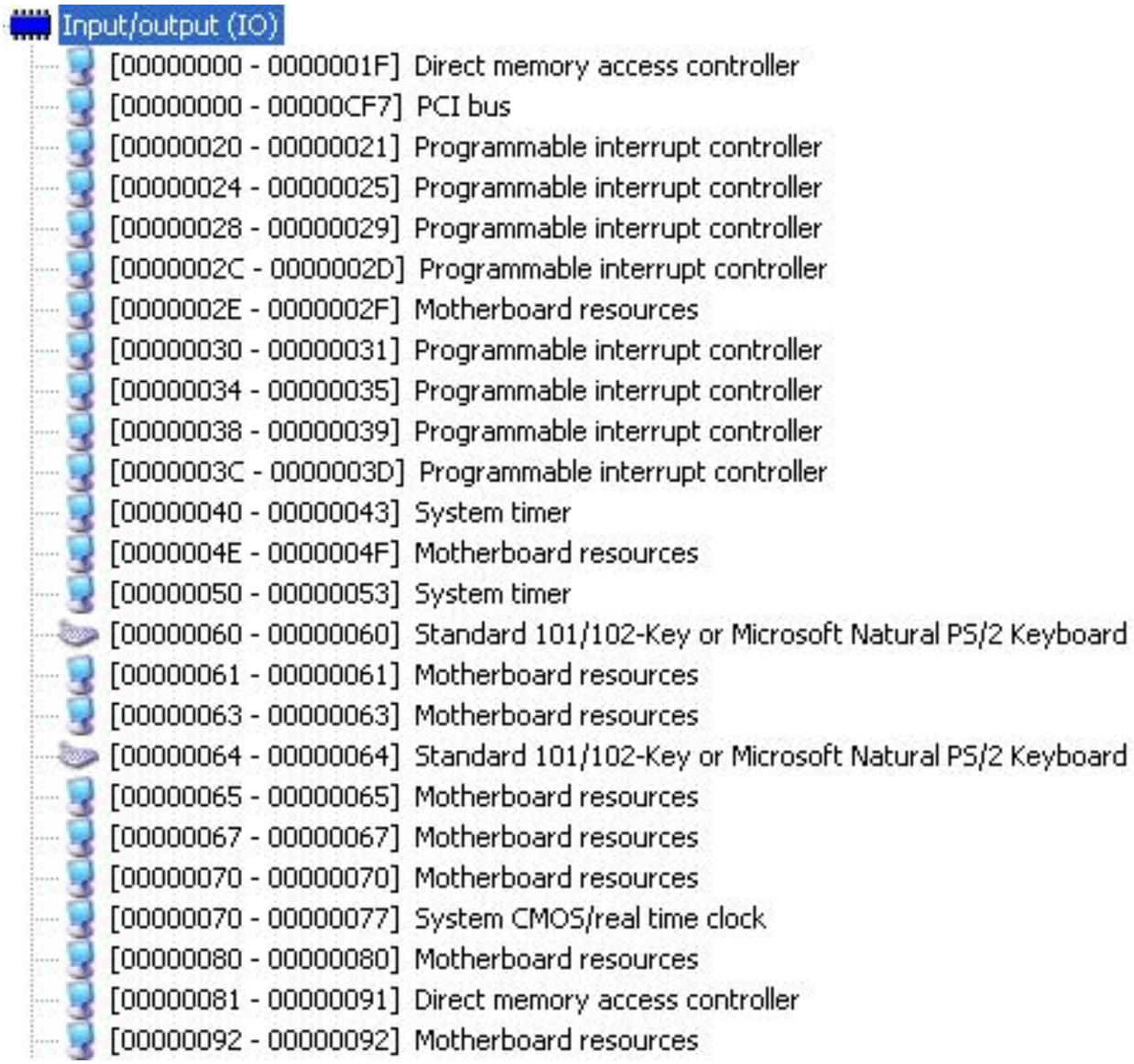
1. Please make a bootable floppy disk.
2. Get the last .bin files you want to update and copy it into the disk.
3. Copy Phlash16.exe to the disk.
4. Power on the system and flash the BIOS.
(Example: C:/Pflash XXX.bin /bbl /cvar /sa)
5. Restart the system.

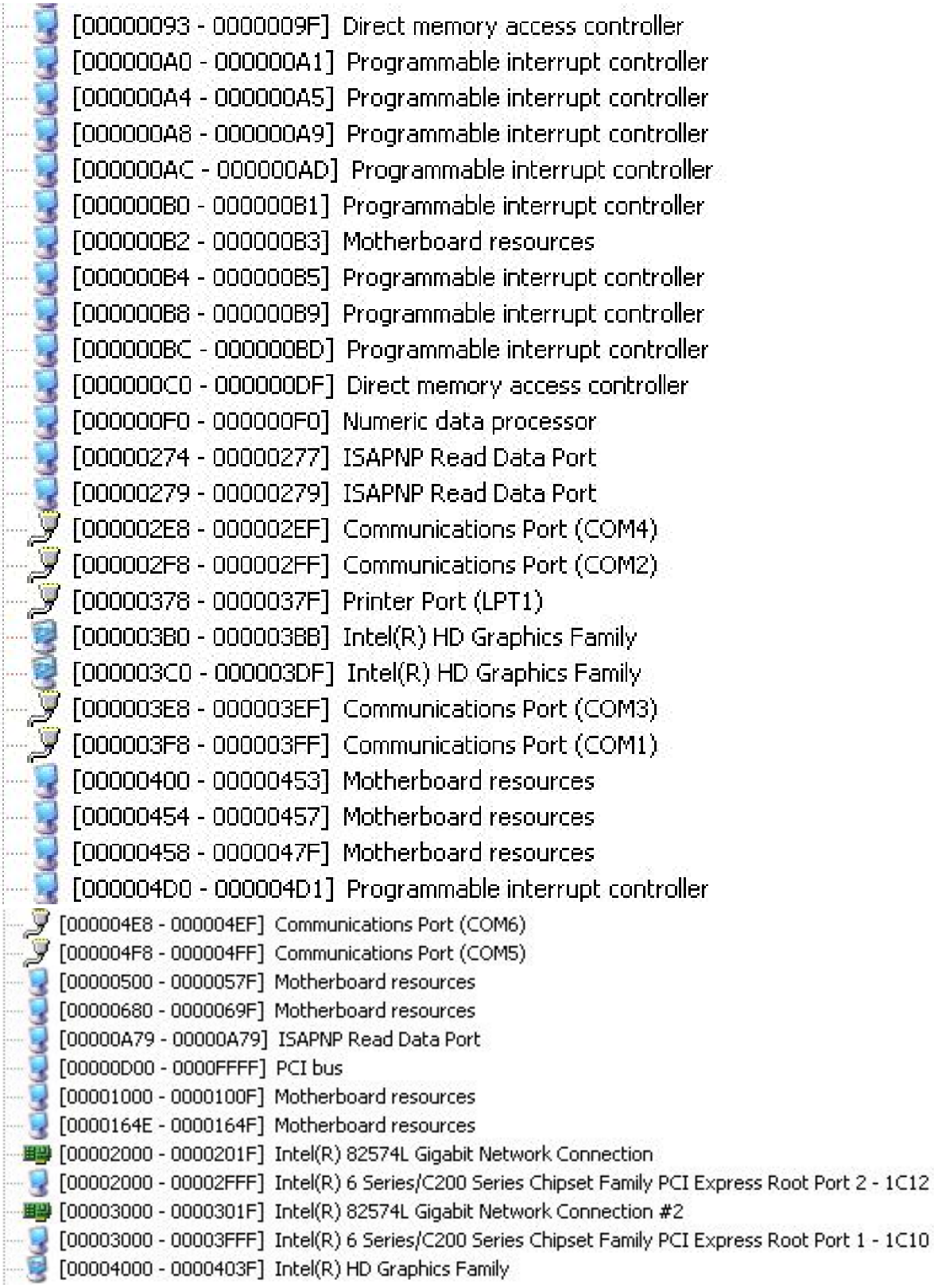
Any question about the BIOS re-flash please contact your distributors or visit the web-site at below:

http://www.commell.com.tw/support/support.htm

Appendix C <System Resources>

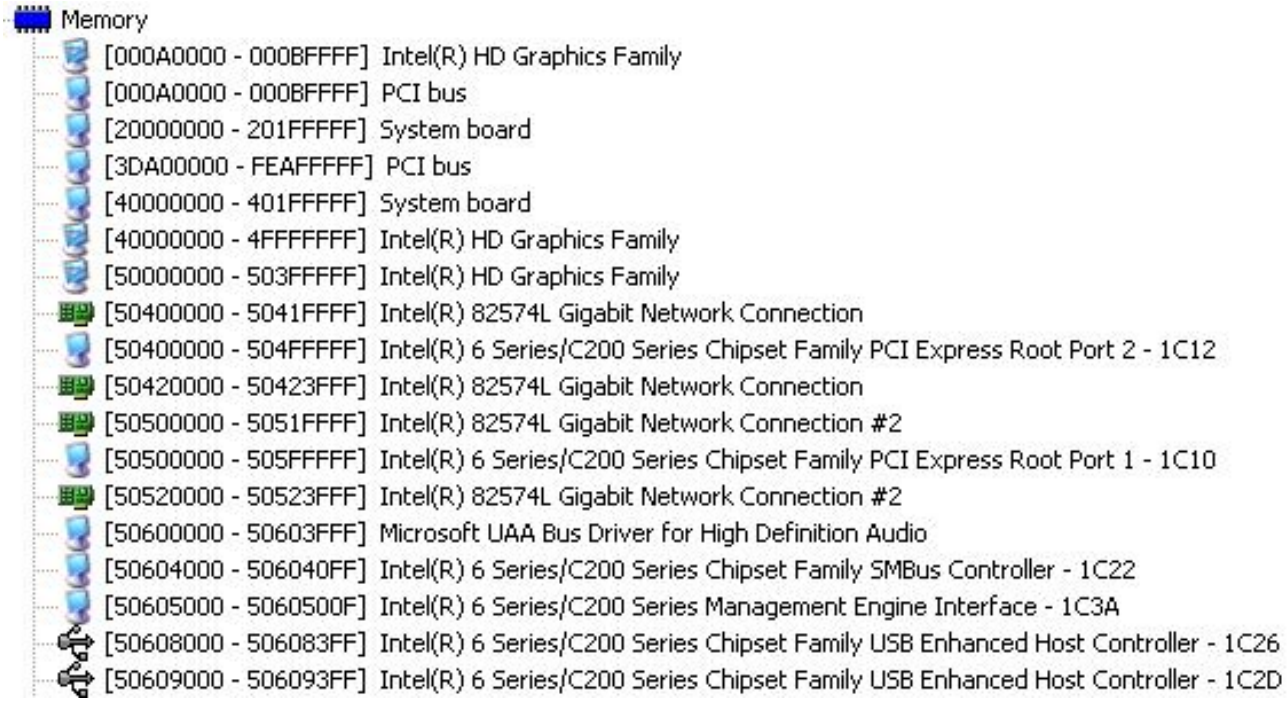
C.1 <I/O Port Address Map>


Input/output (IO)
[00000000 - 0000001F] Direct memory access controller
[00000000 - 00000CF7] PCI bus
[00000020 - 00000021] Programmable interrupt controller
[00000024 - 00000025] Programmable interrupt controller
[00000028 - 00000029] Programmable interrupt controller
[0000002C - 0000002D] Programmable interrupt controller
[0000002E - 0000002F] Motherboard resources
[00000030 - 00000031] Programmable interrupt controller
[00000034 - 00000035] Programmable interrupt controller
[00000038 - 00000039] Programmable interrupt controller
[0000003C - 0000003D] Programmable interrupt controller
[00000040 - 00000043] System timer
[0000004E - 0000004F] Motherboard resources
[00000050 - 00000053] System timer
[00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061] Motherboard resources
[00000063 - 00000063] Motherboard resources
[00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 00000065] Motherboard resources
[00000067 - 00000067] Motherboard resources
[00000070 - 00000070] Motherboard resources
[00000070 - 00000077] System CMOS/real time clock
[00000080 - 00000080] Motherboard resources
[00000081 - 00000091] Direct memory access controller
[00000092 - 00000092] Motherboard resources


[00000093 - 0000009F] Direct memory access controller
[000000A0 - 000000A1] Programmable interrupt controller
[000000A4 - 000000A5] Programmable interrupt controller
[000000A8 - 000000A9] Programmable interrupt controller
[000000AC - 000000AD] Programmable interrupt controller
[000000B0 - 000000B1] Programmable interrupt controller
[000000B2 - 000000B3] Motherboard resources
[000000B4 - 000000B5] Programmable interrupt controller
[000000B8 - 000000B9] Programmable interrupt controller
[000000BC - 000000BD] Programmable interrupt controller
[000000C0 - 000000DF] Direct memory access controller
[000000F0 - 000000F0] Numeric data processor
[00000274 - 00000277] ISAPNP Read Data Port
[00000279 - 00000279] ISAPNP Read Data Port
[000002E8 - 000002EF] Communications Port (COM4)
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) HD Graphics Family
[000003C0 - 000003DF] Intel(R) HD Graphics Family
[000003E8 - 000003EF] Communications Port (COM3)
[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 00000453] Motherboard resources
[00000454 - 00000457] Motherboard resources
[00000458 - 0000047F] Motherboard resources
[000004D0 - 000004D1] Programmable interrupt controller
[000004E8 - 000004EF] Communications Port (COM6)
[000004F8 - 000004FF] Communications Port (COM5)
[00000500 - 0000057F] Motherboard resources
[00000680 - 0000069F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000D00 - 0000FFFF] PCI bus
[00001000 - 0000100F] Motherboard resources
[0000164E - 0000164F] Motherboard resources
[00002000 - 0000201F] Intel(R) 82574L Gigabit Network Connection
[00002000 - 00002FFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
[00003000 - 0000301F] Intel(R) 82574L Gigabit Network Connection #2
[00003000 - 00003FFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
[00004000 - 0000403F] Intel(R) HD Graphics Family

[000004E8 - 000004EF] Communications Port (COM6)
[000004F8 - 000004FF] Communications Port (COM5)
[00000500 - 0000057F] Motherboard resources
[00000680 - 0000069F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000D00 - 0000FFFF] PCI bus
[00001000 - 0000100F] Motherboard resources
[0000164E - 0000164F] Motherboard resources
[00002000 - 0000201F] Intel(R) 82574L Gigabit Network Connection
[00002000 - 00002FFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
[00003000 - 0000301F] Intel(R) 82574L Gigabit Network Connection #2
[00003000 - 00003FFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
[00004000 - 0000403F] Intel(R) HD Graphics Family

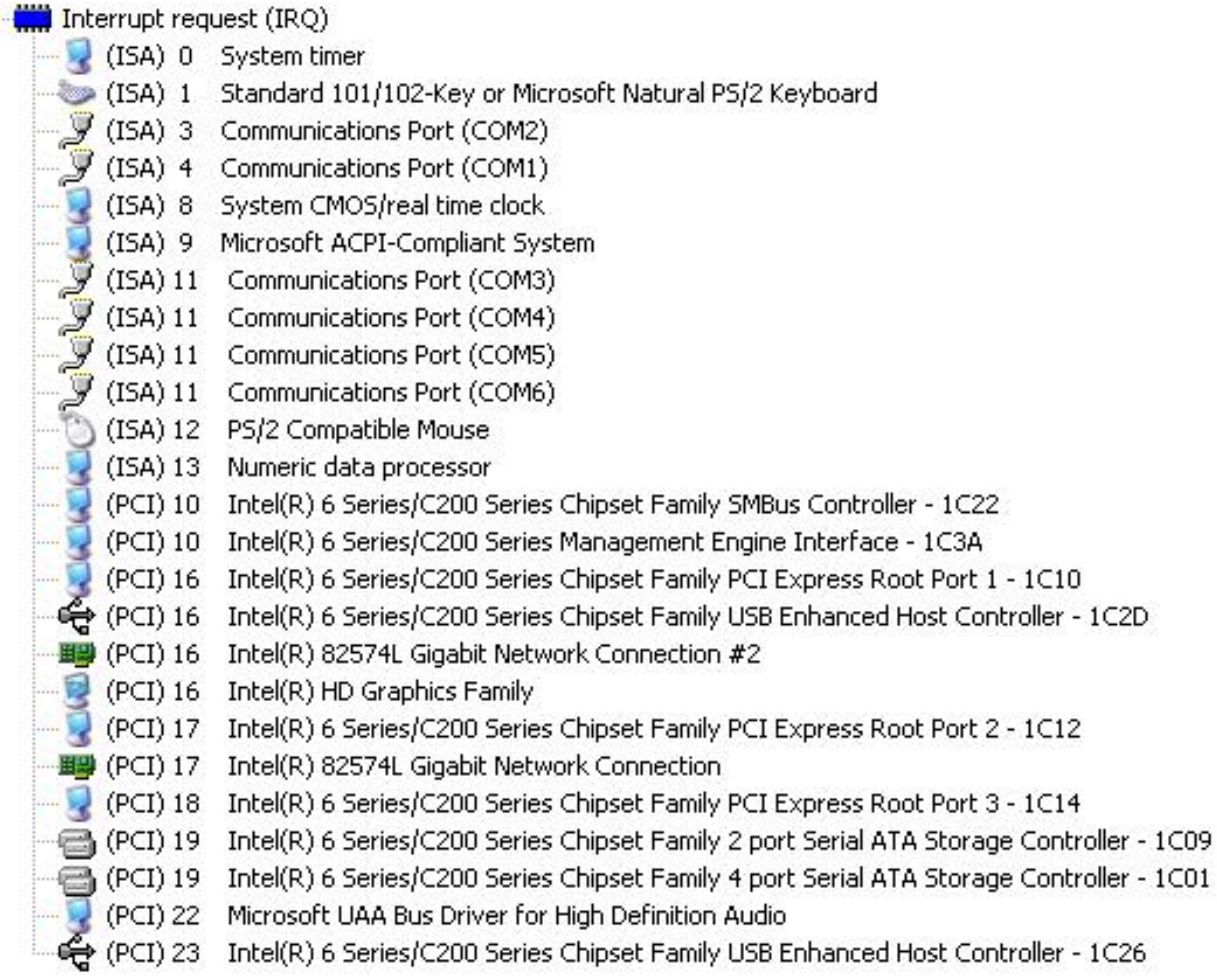
C.2 <Memory Address Map>


Memory
[000A0000 - 000BFFFF] Intel(R) HD Graphics Family
[000A0000 - 000BFFFF] PCI bus
[20000000 - 201FFFFF] System board
[3DA00000 - FEAFFFFF] PCI bus
[40000000 - 401FFFFF] System board
[40000000 - 4FFFFFFF] Intel(R) HD Graphics Family
[50000000 - 503FFFFF] Intel(R) HD Graphics Family
[50400000 - 5041FFFF] Intel(R) 82574L Gigabit Network Connection
[50400000 - 504FFFFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
[50420000 - 50423FFF] Intel(R) 82574L Gigabit Network Connection
[50500000 - 5051FFFF] Intel(R) 82574L Gigabit Network Connection #2
[50500000 - 505FFFFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
[50520000 - 50523FFF] Intel(R) 82574L Gigabit Network Connection #2
[50600000 - 50603FFF] Microsoft UAA Bus Driver for High Definition Audio
[50604000 - 506040FF] Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
[50605000 - 5060500F] Intel(R) 6 Series/C200 Series Management Engine Interface - 1C3A
[50608000 - 506083FF] Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
[50609000 - 506093FF] Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D

C.3 <System DMA & IRQ Resources>

DMA:

IRQ:


Interrupt request (IRQ)
(ISA) 0 System timer
(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3 Communications Port (COM2)
(ISA) 4 Communications Port (COM1)
(ISA) 8 System CMOS/real time clock
(ISA) 9 Microsoft ACPI-Compliant System
(ISA) 11 Communications Port (COM3)
(ISA) 11 Communications Port (COM4)
(ISA) 11 Communications Port (COM5)
(ISA) 11 Communications Port (COM6)
(ISA) 12 PS/2 Compatible Mouse
(ISA) 13 Numeric data processor
(PCI) 10 Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
(PCI) 10 Intel(R) 6 Series/C200 Series Management Engine Interface - 1C3A
(PCI) 16 Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10
(PCI) 16 Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
(PCI) 16 Intel(R) 82574L Gigabit Network Connection #2
(PCI) 16 Intel(R) HD Graphics Family
(PCI) 17 Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
(PCI) 17 Intel(R) 82574L Gigabit Network Connection
(PCI) 18 Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 3 - 1C14
(PCI) 19 Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
(PCI) 19 Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
(PCI) 22 Microsoft UAA Bus Driver for High Definition Audio
(PCI) 23 Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26

Appendix D <Programming GPIO's>

The GPIO'can be programmed with the MSDOS debug program using simple IN/OUT commands.The following lines show an example how to do this.

GPIO0…..GPIO7 bit0……bit7

-o 2 E 87 ;enter configuration

-o 2E 87

-o 2E 07

-o 2F 09 ;enale GPIO function

-o 2E 30

-o 2F 02 ;enable GPIO configuration

-o 2E F0

-o 2F xx ;set GPIO as input/output; set '1' for input,'0'for output

-o 2E F1

-o 2F xx ;if set GPIO's as output,in this register its value can be set

Optional :

-o 2E F2

-o 2F xx ; Data inversion register ; '1' inverts the current valus of the bits ,'0' leaves them as they are

-o 2E 30

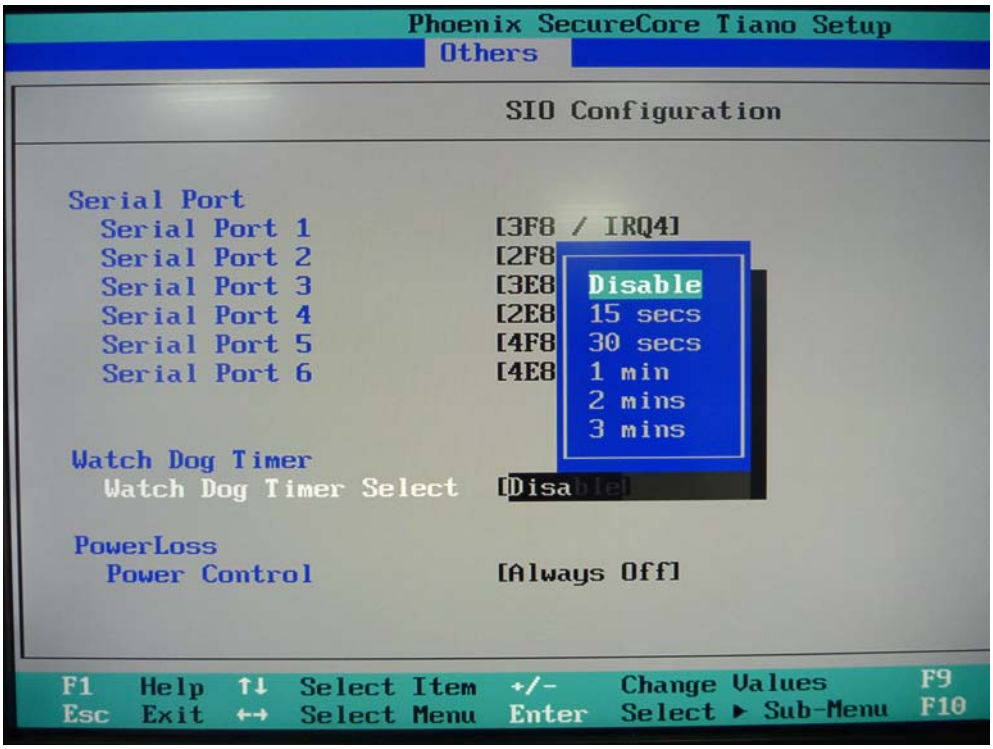
-o 2F 01 ; active GPIO's

For further information, please refer to Winbond W83627DHG-P datasheet.

Appendix E <Programming Watchdog Timer >

The watchdog timer makes the system auto-reset while it stops to work for a period.

The integrated watchdog timer can be setup as system reset mode by program.



Timeout Value Range

- 1 to 255
- Second or Minute

Program Sample

Watchdog timer setup as system reset with 5 second of timeout

2E, 87	
2E, 87	
2E, 07	
2F, 08	Logical Device 8
2E, 30	Activate
2F, 01	
2E, F5	Set as Second*
2F, 00	
2E, F6	Set as 5
2F, 05	

* Minute: bit 3 = 0; Second: bit 3 = 1

You can select Timer setting in the BIOS, after setting the time options, the system will reset according to the period of your selection.

Contact Information

Any advice or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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